A Developmental study of the Acquisition of Certain Syntactic Features of English by Arabic-speaking Learners

by

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In the Name of Allah the Compassionate

the Merciful

IN MEMORY OF MY MOTHER

AND MY FRIEND

MOHAMMAD AL-BAKR.

A B S T R A C T

In a study of interlanguage development two linguistic features are investigated, the Copula Realization and Negation. The objectives of the study are to determine whether

(a) the linguistic behaviour of Arabic-speaking secondary school students is systematic and rule-governed,

(b) the strategies used by the subjects learning English as a foreign language are different from those used by learners of English in a natural environment,

(c) the interlanguage development towards the target is affected by mother-tongue interference.

A combination of cross-sectional and longitudinal approach is used covering a period of 15 months. Three Elicitation Instruments are used: translation from the mother-tongue to the target, recognition and correction, and elicited imitation. The first two tasks are applied 4 times while the last one was applied 3 times only. The data are capable of quantification and statistical analysis.

Sixty subjects drawn from a cross-section of Baghdad urban secondary schools Grades 2-6 are involved. Preliminary data analysis revealed considerable variation and variability due to Task and Time. The items in the Copula Realization and do-support in Negation were found to constitute orders of difficulty significantly different from the official syllabus gradings.

The main analysis of the data revealed that the orders arrived at are consistent irrespective of Task or Time whether cross-sectionally or longitudinally. Sets of these

items were found to constitute significant arrays such that Guttman and/or Implicational Scales can be constructed to account for subject distribution. These scales are incorporated into full scale developmental continua.

It is found that neither learning situation nor mother-tongue affects the sequence of development. Evidence rather points to universal rather than language-specific development. The study ends with some pedagogical implications based on the findings. The most important of these is that structural and mother-tongue oriented syllabuses are useless and that the need is for restriction-free language situations where the learner can get whatever structures he needs at the time he needs them.

Declaration

I declare that this Thesis has been written and composed solely by myself.

A.A.J.Al-Jumaily

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C O N T E N T S

CHAPTER ONE

CHAPTER TWO

CHAPTER ONE

Background and the Scope of the Study

1.0 Introduction.

The purpose of this chapter is to provide some background information and the motivation for undertaking the research. We begin with the official status of English in Iraq, the country where the experiment has been carried out, with an outline of the objectives set for the school syllabus to attain, both at primary and secondary schools.

This study concentrates on aspects of English in the secondary school only when Iraqi pupils will be able to produce enough English for investigation. In this chapter the objectives and aims of this study are set. The structures chosen for the study are introduced both in English and Arabic, the mother tongue of the subjects of the experiment with a rationale for the choice of these particular structures. Since the only use for English in Iraq is that of a foreign language, special attention is paid to the pupils' text-books and teachers, the only possible input for the pupils to draw on. One of the issues the empirical part of this study is going to deal with is that of the orders of acquisition/accuracy of items and implicational patterns, the pedagogical sequence of the items of the structures will be introduced in detail.

1.1 The status of English in Iraq.

Officially, English is given the status of a second language. This is surprising since the only exposure to

English the students have is during English lessons in the classroom. Other than that they do not hear the target language, except on the very few television films which are always provided with sub-titles in Arabic, nor do they ever have a chance of using the language as a natural means of communication in their daily lives.

The pre-university school system in Iraq consists of three stages lasting twelve years, Primary 6 years, Intermediate 3 years and 3 years of Secondary schooling (Usually both Intermediate and Secondary stages are jointly called Secondary). The last three years of the Secondary school are branched into Scientific, Literary, and Vocational sections. The English curriculum is spread over eight years starting with the 5th year of primary school. Tables 1.1 & 1.2 present the hours of English each year of the school system.

Grade	Number of Hours per Week	Average Number of Hours per Year
5th Primary	4	120
6th Primary	4	120
1st Intermediate	6	180
2nd Intermediate	5	160
3rd Intermediate	5	160

TABLE (1.1)

Distribution of hours of English in Primary and Intermediate Schools.

(Al-Hamash, 1978)

Grade	Branch*					
	Literary	Science	Com-merce	Agricul-tural	Indus-trial	Teacher** Training
4th Secondary	5	5	4	2	2	5
5th Secondary	6	5	4	2	3	5
6th Secondary	6	5	4	-	3	4

* Branches of specialization do not apply to 4th year Literary and Science

** Teacher Training refers to Primary Training Colleges

TABLE (1.2)

Distribution of weekly hours of English in Secondary Schools.

(Al-Hamash, 1978)

Children start schooling at the age of six, thus they start learning English at the age of ten years plus. Jiyad (1973), as reported in Al-Hamash (op.cit.), having conducted a study of the effects of early instruction in English for the purpose of comparing the achievement of third-year pupils with that of fifth-year pupils in English discovered that third-year pupils' scores were significantly higher than those of the fifth-year pupils. On the basis of Jiyad's findings, Al-Hamash (op.cit.) recommends that instruction in English should start two or three years earlier in the school programme. Indeed, there are some special category primary schools where English is started at the third year and there are still some others, though very few, where English is started at the very first year of primary school. (These early starters are represented in our experiment).

1.2 The school syllabus.

The new text-books, the first of which was introduced eight years ago and have now covered all the eight years of English, have been motivated by deeply-rooted beliefs about how students will best learn a foreign language. It is fairly obvious that habit formation is the basis for such beliefs (see 1.4 below). Al-Hamash (1978), who is the person in charge of the project and the co-writer of all the text-books argues that "the preparation of the text-books that incorporate the new materials should be done on the basis of the modern scientific principles and should be based on the method of imitation and intensive repetition to the degree of over-learning".

The full course consists of eight books in a series called "The New English Course for Iraq". At the Secondary stage each of these books is accompanied by a "Literary Reader" which is a simplified version of an English novel for each of the fourth and fifth years and an original piece of English literature for the sixth year which is the last year of learning English. The text-books which are all locally written and produced follow a strict structural approach. Each of these books is accompanied by a "Teacher's Guide" which, at the Secondary stage, also includes "open-ended" questions about the "Literary Reader". There are "objective questions" about the "Literary Reader" in the "Pupil's Book". Whoever happened to be the representative of the British Council on the staff of the Institute for the Development of English Language Teaching in Iraq (IDELTI) provided native speaker's consultation for the series.

1.2.1 Objectives of the syllabus.

The general objectives set for the school syllabus of English as stated by Al-Hamash (op.cit.) are that at the end of the Secondary stage students should be able to:

"1. manipulate the four language skills effectively in their daily life in case they do not intend to continue their higher education;

2. develop self-confidence in understanding written and spoken English used outside the school limits;

3. participate effectively in discussions and conversations carried out in English - especially those related to their country and those dealing with political, economic, and cultural issues;

4. study some or all university subjects in English and express opinions, analyses, and information in clear and idiomatic English;

5. use English effectively for the purpose of pursuing higher education abroad or for purposes related to tourism and similar functions."

These, to say the least, are very tall objectives, and how much is achieved towards attaining them at the end of the Secondary stage is one of the aims of this study.

1.3 The teachers and how they are trained.

All English language teachers are locally trained. There are two grades of teachers in the Iraqi school system. Primary school teachers who are graduates of teacher-training schools (see Table 1.2 above). These receive general educational training with no emphasis on any specialized teaching, i.e. they are not trained to teach any specific subject but are just given ideas about teaching in general. As far as their knowledge of English is concerned though it is supposed to be equal to that of their secondary school colleagues, it is usually far less than that due to the fact that the examinations they have to sit are much less

demanding and rigorous than those of secondary schools. Secondary- and Intermediate-school teachers all carry a first degree in the subject they teach. Most of these are graduates of the faculties of education in the different universities in the country, which means they had educational training. In-service training for teachers of both grades is provided through courses held at IDELTI which is run by the Ministry of Higher Education with the British Council enjoying the status of advisory by supplying one of the lecturers who also serves as Assistant Dean for Technical Affairs. The British Council also contributes by providing two, and sometimes more, one-year scholarships in Britain for the two top graduates of the six-month course every year for an intermediate degree in applied linguistics or language teaching. In the last few years numerous crash courses were held to train teachers of both levels on the methods of teaching the new text-books.

1.4 Motivation for the research.

Success in English has been the most elusive goal for Iraqi students to attain. It is not meant by success here of passing examinations and moving up the school ladder, though failure in English examinations has brought about disappointment to lots of students and resulted in great waste in the form of school drop outs who have despaired of crossing the seemingly uncrossable barrier of English examinations. What is meant by success is the final attainment, how far the objectives outlined above (1.2.1) have been fulfilled. It is well-known that even the most successful students, if examination results are to be

considered as reliable indicators of overall competence in the target language, fail to pass the easiest of proficiency tests.

We have always been led to believe, whether teachers or students, that this is so because of the great differences between the target language and the mother tongue of the students, i.e. Arabic. "In the area of grammar, an Arab student tends to construct English sentences by literally translating Arabic words into English and by using the same number of words in the same order". Nasr (1963). As teachers and syllabus writers we have been taught that "for more effective, more satisfactory, and more successful English teaching, both English and Arabic linguistic features must (emphasis mine) be analyzed and compared. The analysis and comparison serve two major purposes:

1. they serve as a guide to the teachers, and
2. they serve as a basis for preparing text-book materials" (ibid)

Although such a contrastive approach to language teaching came under attack as far back as the late sixties, the belief in it remained deeply rooted in Iraq. Thus Al-Hamash (1978) writes, "Such books (the text-books) need to be based on contrastive studies of the foreign language and the native language. Thus, the text-books for Arabic-speaking pupils should not (emphasis mine) be the same as those for speakers of other languages."

So, is it a fact that when Arabic-speaking students produce English they actually produce mother-tongue structures using English lexical items? Are the non-target-like structures produced by Arab students all mother-tongue-like structures?

Another phenomenon that has frustrated teachers of second and foreign languages everywhere is that of "regression" or "backsliding". Why is it that a pupil seems to produce a target-like structure one day and seems to "forget" it later? Is this actually "backsliding" or part of a learning process the learner employs for testing hypotheses about the target language? We feel that finding answers to these questions will contribute towards a better understanding of how English is learned and may thus lead to better results in the field of teaching it in Iraq.

1.5 The structures chosen.

1.5.1 Rationale.

Following a pilot experiment (Chapter 3 below) in which three structural areas of English were used, the copula, negation, and interrogation, the first two areas were chosen for the main experiment.

In the field of the teaching of English in the Arab world and since the emergence of the contrastive approach to language teaching, the copula has been dramatically spotlighted as an area where students face great difficulty due to the difference in structures between Arabic and English. This belief has led to such an emphasis on the copula in the teaching syllabuses and the teachers' plans that sometimes the pupils' acquisition of English is measured by their performance on the copula. This seems to have been to no accord because the pupils still find it difficult to master the use of the copula. Such beliefs have also been expressed by researchers who have investigated

the learning of English by Arab students. Scott and Tucker (1974), for example, declare that "the most frequent verb error was in the use of the auxiliary and copula. Arabic has no auxiliary or copula. Their omission by Arabic speakers in English is attributed to mother tongue interference". An investigation as to reasons why the copula poses such a problem for Arabic-speaking learners of English will be of great use for attempting to solve the problem of its learning.

As for negation, experience in teaching English has shown that it is a major problematic area for Arab students learning English. Very few Iraqi students master the use of this structure at the end of the Secondary stage. What also made it an attractive area to investigate is the great amount of research carried out in it (see 2.5 below). This offers an excellent opportunity to compare our findings with those of researchers who have studied speakers of other languages.

A third, but decisive, factor in determining the choice of these structures is that they are introduced very early in the school syllabus which enables us to get the pupils at a very early stage of learning English (see 1.5.2 below).

1.5.2 <u>The pedagogical sequence of the structures.</u>

The two structures are introduced to the pupils in the following sequence, bearing in mind that each book consists of twenty-four units.

The Copula

Pre-Predicate Nominal	Book One Unit One
Pre-Predicate Adjective	Book One Unit Three
Pre-Locative Prepositional Phrase	Book One Unit Nine

The negative and interrogative structures of the copula are also introduced and drilled in Book One. Thus the copula is fully introduced and intensively drilled before the end of the first half of the pupils' first year of English.

Negation

Copula + neg + NP	Book One Unit Two
Copula + neg + Adj	Book One Unit Three
Copula + neg + Locative	Book One Unit Nine
Negative Imperative	Book Two Unit Two
(do + neg + MV (have)) (No, I don't)	Book Two Unit Fifteen
does + neg + MV (have)	Book Two Unit Sixteen
does + neg + MV (various)	Book Two Unit Seventeen
did + neg + MV (various)	Book Two Unit Twenty-three

This means that all forms of "do" are introduced during the pupils' second year of English. The modals, will shall, can, and must are all introduced in Book Three in their order here. It might be useful to point out that following the introduction of "don't" and as soon as "doesn't" is introduced the whole emphasis shifts on "doesn't" which is then intensively drilled with barely a mention of "don't".

1.5.3 The structures in the target language and the mother tongue.

1.5.3.1 The copula.

Ferguson (1971), classifies all natural languages into two types according to the appearance of the copula in

these languages. "Type A has a copula in all normal neutral equational clauses, the absence of the copula is limited to certain set expressions or signals a particular style or register, such as proverbs". English is one such language. "Type B languages normally have no copula in equational clauses". Arabic is one of the languages of this type where there is no copula irrespective of the following complement. The copula is used when a tense other than present is called for. In this case the copula is placed before the subject at the beginning of the proposition (not after the subject as Ferguson (op cit) puts it). However this literally holds when the subject is a nominal NP. If the subject NP is a pronoun then it will not be realized in the surface structure of the sentence but will be manifested by the inflection of the copula and the complement if it is a noun or an adjective.

It is useful to note here that Arabic verbs have two tenses; one, usually called the 'perfect' and generally referring to past time, is formed by adding suffixes; the other, usually called the imperfect and generally referring to present and future, is formed by the addition of prefixes and in several forms a suffix marking plural and gender. Arabic verbs are inflected for three persons, three numbers, and two genders. The suffixes at the end of the perfect form are those for gender, number and person.

e.g. (The transliteration system of Arabic alphabet used here is that of the Encylopedia Britannica). The examples here are in Standard Arabic the only written Arabic dialect the subjects know.

1. ʾakhī tilmīdhun
   brother-my pupil
   My brother is a pupil.

2. huwa tilmīdhun
   he pupil
   He is a pupil.

3. kāna ʾakhī tilmīdhan
   was brother-my pupil
   My brother was a pupil.

4. kāna tilmīdhan
   was (he) pupil
   He was a pupil.

Notice that "he" is manifested by the inflection, or rather lack of it, at the end of the copula "kāna" since this is also the base form or the root of the verb.

5. Kānat tilmīdhatan
   was-she pupil
   She was a pupil.

Notice the inflection of the copula for gender and also the agreement of the complement.

6. Kānū talāmīdhan
   were (they) pupils
   They were pupils.

The copula in this sentence is inflected for number.

Existential clauses in Arabic are represented by the verb form "yūjad" or "tūjad" meaning "exist" but they are not part of this study.

1.5.3.2 Negation.

Put in a nutshell the negative morpheme in English "no" or "not" appears after the first auxiliary verb. Where there is no auxiliary, an auxiliary verb is supplied before the negator in the form of "do" according to tense and the

subject NP when the verb is in the present. The negative imperative is formed by using the negative morpheme "not" with "do" followed by a verb-phrase. The negative morpheme is connected with the auxiliary "be", with "be" as a copular verb, and with "have" as an auxiliary and sometimes as a main verb. This much about English negation is enough for the purpose of this study. What is important to point out here is that, in English, the form of the main verb that follows the negative morpheme is the "infinitive" which is the same form used for the present tense when the subject NP is not a third person singular.

Before discussing negation in Arabic we would like to point out that what we are interested in describing here is merely the surface syntax of the sentences as the learner sees them, i.e. the actual realizations of the Arabic sentences in their final form as the learner would have written them or as they would be introduced to him, rather than getting involved with complex explanations of the relationships between the constituents in the underlying structure.

In Arabic,negation is exclusively preverbal, that is whenever there is a verb in the surface syntax and since the verb is usually at the beginning of the sentence the negative operator is usually in sentence-initial position. In addition to functioning as a negator the morpheme also serves as tense carrier. This is so since the verb form that follows the negator is usually the form used to denote the imperfect (present) which makes it in a way similar to English in this respect. The negative morphemes can be displayed in this way.

Tense

neg + { perfect (past) → lam
imperfect (present) → lā
(future) → lan* }

*There is an alternative form for negation of the future which is similar to the English form.

sawfa lā = will not (shall not)

e.g.

1. lā yaktubu l-waladu
neg (imperf) write-(he) the-boy
(present)

The boy does not write.

2. lam yaktubi l-waladu
neg {perfect} write (he) the-boy
{past }

The boy did not write.

3. lan yaktuba l-waladu
neg {imperf} write-(he) the-boy
{future}

The boy will not write.

4. sawfa lā yakutubu l-waladu
will neg write-(he) the-boy

The boy will not write.

5. lā naktubu
neg {imperf } we-write
{present}

We do not write.

6. lam ʾaktub
neg {perfect} I-write
{past }

I did not write.

Arabic has no auxiliary, therefore the negation of the past form of the copula is treated in the same way as those of the other verbs.

e.g. lam yakun tilmīdhan

neg {perfect / past} he-cop pupil
imperf. form

He was not a pupil.

(Notice how the form "kāna = was-he" has taken the form "yakun = he-cop" which is the imperfect form of the verb used only in negation and in the future after "sawfa".)

As in English the imperative form of negation is done by placing the negator before the verb. The morpheme used is the same one used for negating the present so is the form of the following verb.

e.g. 1. lā taktub

neg (imperative) you-write
(singular)

Don't write. (singular addressee)

This sentence in the written form is the same as the sentence meaning "She doesn't write". The ambiguity can be avoided if the vowel that has to be at the end of the verb for inflection "u" is realized

lā taktubu = she doesn't write

2. lā taktubū

neg (imperative) you-write-
plural

Don't write. (Plural addressee)

3. lā taktubī

neg (imperative) you-write-
singular-feminine

Don't write. (singular feminine addressee)

4. lā takun kasūlan

neg (imperative) you-cop lazy
sing imperf.

Don't be lazy.

In equational sentences special negative copulas are used (lays-, and las-). This negative construction is used only in equational clauses and nowhere else in the language. The negative copula is placed at the beginning of the statement with the appropriate inflection for the nominal that follows it or the implied NP when the it is a pronoun.

e.g.

1. laysa l-waladu dhakiyyan
   cop/neg the-boy clever
   The boy is not clever.

2. lastu dhakiyyan
   cop/neg -I clever
   I am not clever.

3. lasta dhakiyyan
   cop/neg -you clever
   sing-male
   You are not clever.

4. lastum 'adhkiyā'
   cop/neg -you clever
   plural-male
   You are not clever.

(Notice the inflection of the adjective for number)

"Can" is represented in Arabic by the verb "yastatī'" which is followed either by a noun or by "'an + maṣdar (imperf. form)" which is equivalent to the English "to + infinitive".

e.g.

1. lā yastatī'u 'an yaktuba
   neg (imperf.) he-can to write
   (present)
   He cannot write.

2. lam yastatiʿ ʾan yaktuba
   neg (perf.) (past) he-can to write
   He could not write.

"Must" represented by the verb "yajib" differs from the other verbs in that it is always followed immediately by the "ʾan + maṣdar" and that the negator comes before the "maṣdar = infinitive" and not before the verb itself.

e.g.

1. yajib ʾan lā taktuba
   must to (neg) (imperf.) you-write
   You must not write.

2. yajib ʾan lā yaktuba l- waladu
   must to (neg) (imperf.) he-write the-boy
   The boy must not write.

1.6 The aims of this study.

Except for Felix (1980) little is known about the processes and mechanisms by which students learn a second language when they are exposed to the second language data only during classroom hours. Within the framework of a general theory of language acquisition it seems therefore highly desirable to devote some attention to this type of language learning.

The primary goal of this study is to determine any possible regularities in the way foreign language students process the linguistic data they are exposed to in a classroom situation and the pedagogical implications of such regularities if any.

The findings of this study are to be related to the available findings of research in naturalistic second

language acquisition both by speakers of the same language background as that of the subjects of this study and by speakers of other languages in order to see how different learning situations affect the processes by which a language is acquired.

1.7 The structure of this thesis.

This thesis consists of **seven** chapters. The contents of the rest of the chapters are as follows:

Chapter Two: This chapter is a survey of the recent theories and models in the field of second language acquisition and learning, the strategies of learning and a survey of the research in the structural areas relevant to what is being studied here. The survey is started with a review of the studies dealing with orders of acquisition/accuracy of English morphemes followed by a discussion of different approaches to second language learning namely the Contrastive Analysis Hypothesis, the Interlanguage Hypothesis, the Approximative Systems Hypothesis, the Creative Construction Hypothesis, Krashen's and Bialystok's models and the Interlanguage Continuum. This is followed by a discussion of Variability and the use of Variable rules, with special emphasis on Implicational Analysis with a review of related research using implicational analysis. Later the strategies of learning are discussed and research on English negation is surveyed. The chapter ends with a section explaining how the literature reviewed is integrated into the study.

Chapter Three: This chapter is dedicated to the discussion of the research techniques that are going to be employed with a rationale for the employment of each of them. These

techniques are Direct Translation from the mother tongue, Recognition and Correction, and Elicited Imitation. The chapter ends with a statement of the hypotheses the research is going to test, after a discussion of the Pilot Experiment.

Chapter Four: This chapter addresses the general design and final design of the experiment following the results of the PE. All relevant information about the subjects, the contents of each elicitation task and the administration of the experiment is provided in this chapter. Since the reliability of the Elicited Imitation task has been a subject of controversy with claims and counter-claims about the way learners imitate an assessment of the subjects' performance on this task is provided in this chapter. The chapter ends with an outline of the criteria of assessment of the subjects' performance.

In Chapter Five, the results of the experiment are outlined. First the subjects' overall performance is assessed then the results of each structural area are introduced in detail using ANOVA, Guttman and Implicational Scales.

Chapter Six is dedicated to the discussion of the results of the previous chapter with outlines of the continua for copula and negation and the use of variable rules to describe sequences of development. Stages of development arrived at in this research are compared to those of first language acquisition and second language acquisition by both speakers of languages other than Arabic, as well as by speakers of Arabic learning English in a natural environment.

Chapter Seven of this study is dedicated to the conclusions arrived at with the pedagogical implications of these findings.

CHAPTER TWO

Second Language Acquisition and Related Research

2.0 Introductory Remarks.

Since the learner's language was recognised as a system in the late sixties and within the framework of error analysis this system has enjoyed a great deal of attention. The notion of system as proposed by Corder (1967) is that language learners use "a definite system at every point" in their development, although "it is not that of the second language". The system was given different names such as transitional competence, idiosyncratic dialect, language-learner language (Corder, 1967, 1971, 1978b respectively), interlanguage (Selinker, 1972), or approximative system (Nemser 1971). It was stressed as can be deduced from Corder's"transitional competence" that this linguistic system, contrary to what was commonly agreed about linguistic systems of being stable, is a dynamic one. Different approaches have, so far, been introduced towards understanding the components of this system and how it evolves. In this chapter we are going to review the current theories about the nature of the language-learner's language with the arguments for and against as a first step towards adopting a theory that fulfils the following natural requirements:

a. show whether the process of acquiring a second language is principally the same as the acquisition of the first.
b. define the role of the mother tongue in the learning of the second language.

c. show whether there is a natural sequence in the acquisition of a second language in such a way that some structures are earlier acquired and therefore more basic than others.

d. show how specific structural areas develop.

adopted from Hyltenstam (1978a)

We are going to dedicate a whole section to the morpheme order studies (Dulay and Burt, 1973, 1974) because in addition to being a break-through in the study of second language acquisition they have remained the most often discussed work in second language research.

2.1 The Morpheme Order Study.

The notion of morpheme order (or "order of acquisition" as it was first called) has grown out of the Harvard project (Cazden 1968, Brown 1973). Brown demonstrated that children acquiring English as a first language show a similar order of acquisition for grammatical morphemes in obligatory occasions. Certain morphemes, such as ing and plural, tend to be acquired relatively early, while others, such as the third person singular /s/ in verbs in the present tense or the possessive _s marker, tend to be acquired late. The critical point of acquisition can be set arbitrarily, preferrably around 90% of target-like usage. Brown's longitudinal findings were confirmed cross-sectionally by de Villiers and de Villiers (1973). This approach has been widely adopted for recent second language studies (for instance, Dulay and Burt 1973, 1974, 1975, Baily et al 1974, Hakuta 1974, Larsen-Freeman 1975, Rosansky 1976, Kessler and Idar 1977). In their study Dulay and

Burt used an instrument they devised to elicit natural spontaneous speech data. They called it the Bilingual Syntax Measure (BSM) (Burt, Dulay and Hernandez 1975). Dulay and Burt and later Bailey et al have claimed that the acquisition they arrived at is adhered to by second language learners of English irrespective of their age or language background, but they offered no explanation for the occurrence of such a morpheme order. (Sampson 1978).

The morpheme accuracy studies was and still is the subject of debate. While some researchers argue for the validity of Dulay and Burt's findings supporting their claims with empirical evidence (Bailey et al 1974, the Krashen studies, Fathman 1979), others criticise the methods and/or the results putting forward on their part empirical evidence to support their arguments (see for example Larsen-Freeman 1975, 1976, Hakuta 1974, Rosansky 1976, Wode 1976, Wode et al 1978, Andersen 1976, 1977).

Larsen-Freeman (1975) using four data collection procedures in addition to the BSM arrived at the conclusion that the morpheme acquisition order - she preferred the term "common difficulty order" - is the artifact of the BSM, or, to be more precise, the order was restricted to tasks eliciting oral production, namely speaking and imitating. Porter (1977), Hakuta and Cancino (1977) and Rosansky (1976) express similar points of view. However, Larsen-Freeman (1976) agrees with Dulay and Burt that language background does not have a significant effect on the way learners of English as a second language order English morphemes. Krashen (1976, 1977 , 1978, 1981 and Fathman 1979) argues

against Larsen-Freeman and the others. Having used different procedures in addition to the BSM, such as the Fathman's SLOPE test he argues that whatever variation in the order of acquisition is in fact due to the employment of conscious grammar by the learner. He also argues that some kinds of tests, such as "the pencil and paper grammar-type test" of Larsen-Freeman invite the use of the Monitor (cf. 2.2.5 below).

Other arguments against the morpheme order studies are raised by Rosansky (1976), Andersen (1977) and Wode et al (1978). These researchers agree that methodological problems concerning data collecting procedures and statistical evaluation make the results of these studies difficult to interpret. Fathman (1979) discusses some of the limitations of the morpheme studies to which Andersen (op cit) adds that the morpheme "accuracy" methodology, as he calls it, "whittles away the data until what remains in the final analysis is less interesting than what has been discarded" and that "these methods of analysis obscure and eliminate variation in individual production of the morphemes under study and fail to reveal true systematicity in the data". As an alternative Andersen suggests the use of what he calls Group Range Method which, in a later study,(Andersen 1978a) he enlarges into the full use of implicational model (sec. 2.3.1 below). Wode et al (op cit) agree in essence with Andersen and point out the necessity that any model should reflect the developmental sequence that led to the target-like mastery. They add another point of disagreement with Dulay and Burt's finding,

namely that they believe that there can be no universal order of English since reliance on the first language is an integral part of second language acquisition (see also Wode 1976 for similar arguments). They also stress the necessity of the acquisitional comparability of the morphemes as a prerequisite for deciding the possibility of getting at an acquisitional order, i.e. one should not compare morphemes whose formal properties are acquisitionally quite different such as bound vs free forms or /r/ vs. negation.

2.2 Theories and Models of Second Language Learning.

It is very unlikely that all formal devices of natural languages, or that the various structural subsystems of a language should be learned. Therefore, it is important to check any proposals about the acquisition of restricted areas of language structures as to whether, and to which extent, they can be generalised to other areas for which they were not expressly designed.

2.2.1 The Contrastive Analysis (CA) Hypothesis.

The hypothesis that dominated the field of second language through the sixties and early seventies and which is still in vogue in many countries is the Contrastive Analysis Hypothesis (CA) suggested by Lado (1957) following the tradition of Charles Fries and the general paradigm of behaviourist psychology. The hypothesis rests on the following assumptions about the process of language learning:

1. Language learning is habit formation.
2. An old habit (that of using one's language) hinders or facilitates the formation of a new habit (learning a second language) depending on the differences or similarities, respectively, between the old and the new.

Although the strong version of the hypothesis that it can predict most of the errors a learner will make while learning a second language, was toned down to the claim that it can account for a great number of errors that second language learners had actually made, criticism of the hypothesis intensified in the late sixties. Corder (1967) drew attention to the fact, which has since become well known, that the hypothesis does not account for many of the errors that can be observed in second language acquisition. Evidence from Dulay and Burt's studies points out that the portion of errors made reflecting first language structure confirm "in part the product level of the CA hypothesis" but "is not enough to justify the process level which is questionable on theoretical grounds". (Dulay and Burt 1974b). Contrary to the claims of the CA hypothesis Dulay and Burt argue that the learner's first language plays no significant part in the learning of the second. As an alternative they propose the Creative Construction hypothesis. (For a more detailed discussion of the strong and weak versions of the CA hypothesis, see Schachter 1974).

2.2.2 The Interlanguage Hypothesis.

Following the discovery of the shortcomings of the CA hypothesis and the evolution of error analysis, attempts were made at developing an understanding of the processes of second language acquisition. Emphasis was shifted from studying and analysing the systems of the first and the target languages to the analysis of the learner's language which began to be seen as a phenomenon to be studied in its own right. Selinker (1972) who introduced the term

"interlanguage" to refer to the language-learner language defined it as "a separate linguistic system based on the observable output which results from a learner's attempted production of a target language norm".

Proponents of the Interlanguage (IL) Hypothesis believe that the data they offer support universal language processing strategies. According to Tarone et al (1976) ,TFS, IL productions have the following characteristics:

1. second language speakers rarely conform to what one expects native speakers of the target language to produce,
2. IL productions are not an exact translation of native language utterances (i.e., first language interference and facilitation do not play the primary role in the formation of IL's).
3. utterances in the second language are not randomly produced, and
4. IL's are spoken either by adults or by children when second language acquisition is not simultaneous with that of the first language.

Having the above-mentioned "facts" in mind, Tarone et al (1976) elaborate on Selinker's definition by hypothesising that the existence of "a separate linguistic or psycholinguistic system (interlanguage) which forms in the mind of the learner and which may take the form of a pidgin and which may develop into a separate dialect in its own right. This system draws on both the native language and the target language as well as other sources for its surface form". Tarone et al (op cit) express their disagreement with

proponents of the Approximative Systems Hypothesis that the learner's language is directional, evolving in stages which closer and closer approximate the norm of the target language and that these stages are necessarily discrete. Tarone et al do not elaborate on how and when second language learners draw on the native language nor to what extent they do so.

2.2.3 The Approximative Systems Hypothesis.

Nemser (1971) using the term approximative system for interlanguage adds an important dimension to the study of the learner's language since this term implies the developmental natures of language as the learner's system is continually being modified as new elements are incorporated throughout the learning process. Following Nemser's theory, Sampson (1978) introduces the Approximative System model which "postulates a series of systems, unknown in number, which range from minimal knowledge of the second language to knowledge approximating that of a native speaker of the second language. The model has the following characteristics:

1. a system must be at least momentarily stable,
2. inherent variability which arises under conditions of language use (function), not language code or structure, causes the system to shift. The shifting (learning) takes place because the learner's changing functions cause the learner to reevaluate his or her linguistic hypotheses concerning the structure of the second language.
3. as soon as the internal structure of the approximative system begins to shift there is room for the learning of new syntactic or phonological forms. So following the arrangement of the approximative system a new one comes into being,

4. the learning is biologically based up to the age of three or four when it becomes socially based since some of the functions of language are based on social interaction, and
5. acquisition of syntactic forms in a second language cannot be smoothly sequential because the learner is jumping from one function to another. Thus Dulay and Burt's morpheme order is explained as due to the probability that their method evoked speech in only one function.

2.2.4 The Creative Construction Hypothesis.

The Creative Construction Hypothesis, or the L2 acquisition = L1 acquisition as Dulay and Burt (1974b) call it, is based upon a number of carefully done studies of morpheme acquisition in second language learners using the Bilingual Syntax Measure (see 2.1 above). This hypothesis links with the Chomsky tradition rather than with the CA hypothesis.

Researchers offering this hypothesis maintain that in learning a second language children make use of universal cognitive mechanisms of which reliance on the first language is not a central part. This is said to explain - according to them - why children from different first language backgrounds use target items from English target-like in much the same chronological order.

In addition to the criticism outlined above (2.1) Wode (1980) argues that the items that the studies dealt with are too small and "do not constitute a language" (see also Fathman 1979). In general, Wode (op cit) believes, the hypothesis does not fully hold for those structural areas not

covered by them. Sampson (1978) criticises both the Creative Construction Hypothesis and the Interlanguage Hypothesis as vague and states that "neither model provides an explanation for the data presented ... and neither provides a stimulus for specific kinds of research relating to problems arising from the analysis of the data" Richards (1974) suggests that the Creative Construction Hypothesis resembles that of the Approximative System or Interlanguage with the exception that Dulay and Burt prefer to interpret interference-like errors as over-generalization.

2.2.5 Krashen's and Bialystok's Models.

In an attempt to explain variation in a second language learner's performance,Krashen suggested his Monitor Model (cf. Krashen 1976, 1977, 1978, 1981). In his model, Krashen following Lawler and Selinker (1971) makes the acquisition-learning distinction. To him (see for example Krashen 1981), language acquisition, or what is commonly referred to as "natural" or "untutored" learning, is a subconscious and intuitive process of constructing the system of a language, (i.e., subconscious attention to function) such as that used by the child in acquiring first and second languages. Language learning, on the other hand, or what is generally known as "formal" learning, is a conscious representation of rules usually in a deductive or pedagogically oriented context (i.e., conscious attention to forms). The Monitor is part of learning. The fundamental claim of Monitor Theory as Krashen (1981) puts it is that "conscious learning is available to the performer only as a Monitor. In general,

utterances are initiated by the acquired system - our fluency in production is based on what we have 'picked up' through active communication. Our 'formal' knowledge of the second language, our conscious learning, may be used to alter the output of the acquired system, sometimes before and sometimes after the utterance is produced". Krashen also points out that acquirers may "self-correct on the basis of a 'feel' for grammaticality" without awareness of the rules they possess. This is in line with d'Anglejan's (1979) that "gut reactions" are sometimes relied upon for correction.

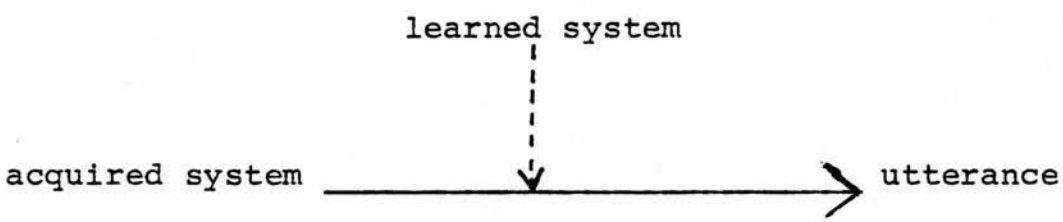


Figure (1)

An illustration of Krashen's Monitor Model (Krashen 1981)

Krashen (op cit) sets the following three conditions for successful use of the Monitor:

a. that the performer must have time,
b. that the performer must be focused on form or correctness,

and c. that the performer needs to know the rule.

Thus foreign language learners as opposed to second language learners will show more use of the Monitor (Houk et al 1978) because they will have "learnt" language and not "acquired" it. Another conclusion arrived at by Houk et al (op cit) is that Monitor users do so only when they are focussed on discrete points of grammar.

As for the role of the mother tongue, Krashen (1981) suggests that its influence is unnatural and that it (the influence) appears to be strongest in "acquisition poor" environments and "in complex word order and word-for-word translation of phrases" while it is weaker in bound morphology. He concludes that "the first language may 'substitute' for the acquired second language as an utterance initiator when the performer has to produce in the target language but has not acquired enough of the second language to do this." This is clearly a strategy of communication and not a learning strategy which confirms that Krashen's model is a wholly recreational one.

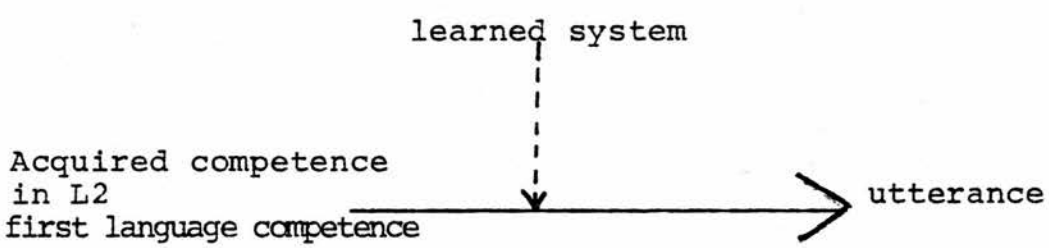


Figure (2)

First language influence in second language performance
Krashen (1981)

On the same theme of attended and unattended interlanguage Bialystok (1978) introduces her theoretical model of second language learning which can be looked upon as an expansion of Krashen's Monitor Model. (see figure 3).

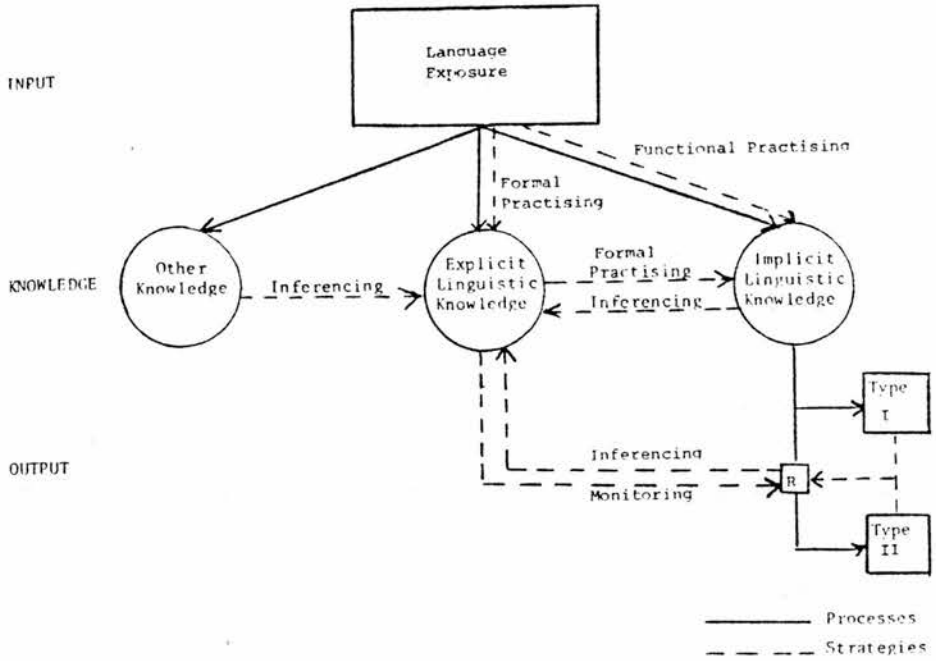


Figure (3) Model of Second Language Learning. Bialystok(1978)

Bialystok claims her model is useful for explaining both individual variations in achievement and differences in skill development for second language learners. In this model "functional practising" represents Krashen's "acquiring" while "formal practising" represents "learning". Implicit linguistic knowledge contains automatic information that is used spontaneously in language tasks, therefore this knowledge produces only Type I responses, i.e., spontaneous responses. Explicit knowledge contains all the conscious facts the learner has about the target language. Responses produced through this knowledge are Type II responses, which are deliberate and occur after a delay. Other knowledge contains all other information the learner brings to the language task, such as knowledge of other languages, information about the culture associated to the target language, knowledge about the world and so on.

Bialystok (1979b) postulates three factors to serve as predictors for the intervention of explicit knowledge in a language task. They are "the amount of formal detail required, the specific linguistic structure contained in the response, and the length of time allowed to respond". d'Anglejan (1979) questions some of Bialystok's (1979a) inferences and techniques, especially the tasks assigned to Implicit knowledge.

Task focus (attention) has been recognised to influence production (cf for instance Labov 1969, and Dulay and Burt 1978) but the question that remains is the degree of attention and whether the learner's language consists of a continuous range of styles which are defined, as Labov suggests, by the degree of attention paid to speech or whether it consists simply of two opposing models of monitored and unmonitored language. (Tarone 1979). Hyltenstam (1978b) on the other hand, believes that rather than the existence of two types of competence "a case can be made for the existence of one type of competence - a variable competence - the manifestation of which, although constrained within certain definable limits, varies from data type to data type".

2.2.6 The Interlanguage Continuum.

A long-held conviction of Corder's is that the learners' language forms a continuum of development at various points of which their interlanguage grammars show similarities (cf. Corder 1967). The learner's language being a dynamic system similar to that of the child learning his first language forms a continuum of complexity along

which the learner moves up and down testing his hypotheses about the language he is learning (cf. Corder 1975, 1977, 1978a, b, Hyltenstam 1978a). The notion of progressive complexity, however, was recognised at a somewhat later date because as Corder (1977) puts it, researchers "were all concerned to describe and explain 'errors' of second language learners and to investigate through them the processes or strategies of second language which they thought of as a process of restructuring and accumulation" neither of which implying increase in complexity.

Corder (1977, 1978b) recognises two kinds of continua, a Selinker-Bickerton continuum or a lectal continuum which "envisages the learner as engaged in a process of progressively adjusting his mother tongue system to approximate it ever more closely to the target". This is a restructuring continuum of equal complexity, i.e., overall complexity of the language remains the same at any point along the continuum. This type of continuum though accounts for evidence of first language related errors in the learner's interlanguage it fails to recognise teachers' claims that "language-learner language is in some sense a good deal less complex than that of either his mother tongue or the target language". (Corder 1978b). This also runs counter to the massive evidence that some learners show no evidence of first language influence in their language. (See for instance, Dulay and Burt (1974b) Krashen studies, Larsen-Freeman 1976). Variability in such a non-developmental continuum is across the scale of complexity (i.e., horizontal) (Corder 1977).

Taking the above mentioned evidence into consideration, Corder (1977, 1978a, b) introduced his recreation or developmental continuum in which second language acquisition resembles, perhaps in some respects, the acquisition of the mother tongue, which is quite evidently a process of increasing complexification of the child language. This developmental continuum or built-in-syllabus (Corder 1967, 1978a, b) forms the shortest route between the starting point and the goal of the target language. This starting point [initial hypothesis or heuristic device, Corder (1975)] for a complexification process, which, at the same time, is partly a restructuring process, "may be some simple register of our mother tongue, some natural semantactic system from which all language development starts, mother tongue, pidgin, creole, or interlanguage, which, as Bickerton (1974) has suggested, may be innate, not in the Chomskyan sense of being language specific, but in the sense that it is the product of the innate cognitive and perceptual processes of the human mind". (Corder 1978b). As for the question of how learners of a particular mother tongue learning a particular target language find that shortest route, Corder (1978a) believes that "language learners are, in a sense, 'programmed' by their innate cognitive capacities to seek out the most economical route from mother tongue to target language, i.e., built-in-syllabus". On the basis of this "initial hypothesis" and using the process of assimilation the learner interprets the structure of the data (Corder 1975).

Addressing the question of how far down the scale of simplification the learner moves before he starts to build up again, Corder (1978b) suggests that this depends on the learner's perception of language distance or how much the mother tongue is related to the target language which in a way specifies the role played by the mother tongue in the learning process. The more closely related the mother tongue and the target language the greater the interference phenomena are in the speech of language learners while interference is least in evidence when regression is maximal, that is in acquiring some maximally different language. Thus Corder (1978b) concludes that the effect of the mother tongue is on the speed of development at certain points rather than the sequence of development.

Another characteristic of such a continuum is that it can be described in terms of implicational scales. Variability in the developmental continuum is manifested by movement up and down the scale of complexity (i.e., vertical) (Corder 1977). (see figure 4).

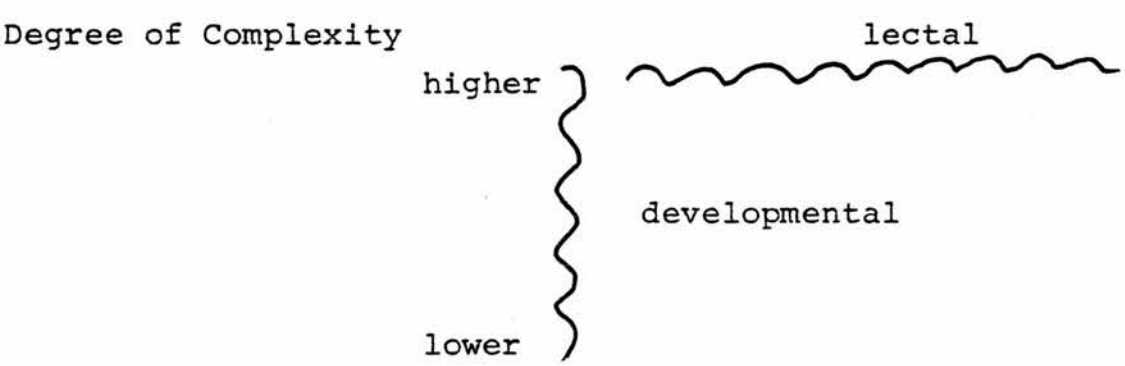


Figure (4)

The Two Types of Continua (Hyltenstam 1978a)

These types of continua account for some phenomena in linguistic behaviour that the other theories fail to. For instance, it accounts for the fact that all pidgins, "reduced registers" in a single language and the interlanguage of language learners all tend to show striking formal similarities. Corder (1975). By adopting the notion of complexification rather than that of simplified systems and by hypothesising that "no approximative system developed in the learning of any language is obliterated but remains available both for communicative functions in the mother tongue and as initial hypothesis in the learning of second language" Corder (op cit) explains our ability to interpret infant utterances in context without too much difficulty and also to go down the scale of complexity when using simplified registers such as baby-talk (motherese) foreigner talk, etc.

In adopting this developmental continuum as a model for language learning (first and second) Hyltenstam (1978a, b) argues that development towards the target language can be seen through "a general linguistic theory of markedness". He hypothesises that "the initial stages of interlanguage are characterised by unmarked categories" and that "development towards a given target is achieved from unmarked to marked categories". Hyltenstam (1978a) declares that what differentiates the interlanguage continuum from that of the first language is the effect of the mother tongue on the former. (see figure 5).

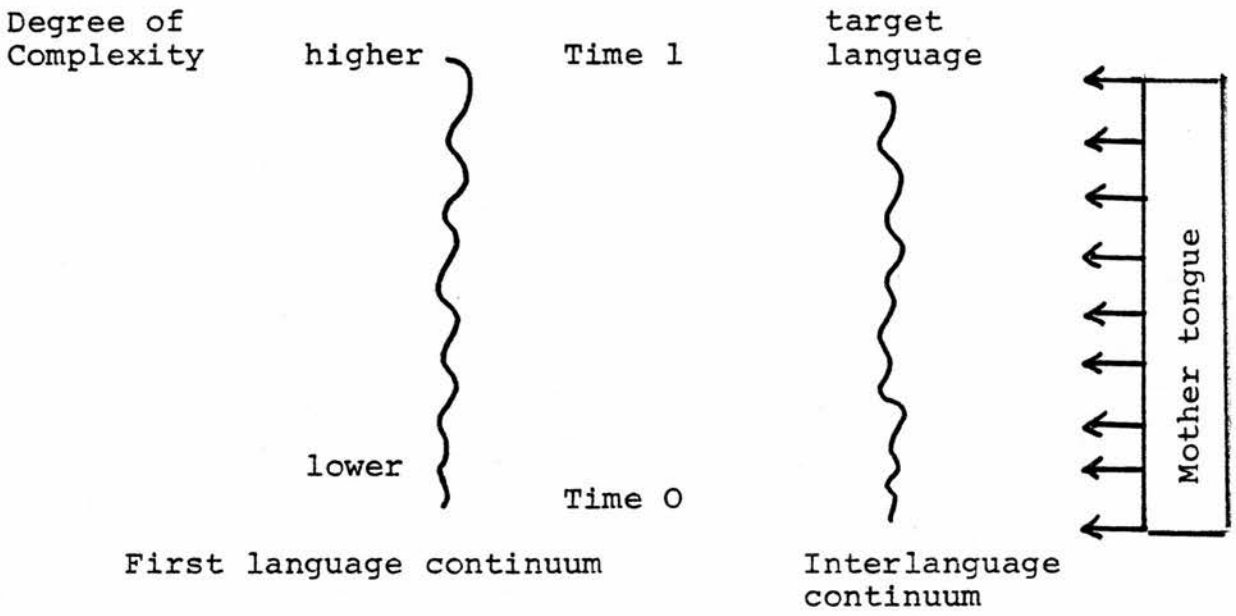


Figure (5)

Hyltenstam (1978a)

2.3 Variability Analysis.

Following the de Saussurian tradition and in the mid-sixties, Chomsky proposed one of the most controversial issues in general linguistic theory, the doctrine of homogeneity:

> "Linguistic theory is primarily concerned with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance" (Chomsky 1965)

This statement which establishes the static homogeneous view of language and linguistic data requirements prompted heated debate on Chomsky's dichotomy of Competence and Performance. However, Labov (1966), in a sociolinguistic study, discovered patterned variation in the language of a

speech community, a discovery which greatly bated Chomsky's claim. Now the argument was centred on whether this patterned variation in the speech of any group of speakers or speech community is acceptable and on whether or not this variation belongs to Chomsky's Competence, or is a feature of Performance. Traditionally variation was considered merely as a Performance phenomenon resulting from the application of optional rules and some performance variables - unless the observed variation was seen to be linguistically conditioned such as in Complementary Distribution. The phenomenon was further clarified by Labov (1969) when he introduced the concept of Variable Rules, which involved the statistical quantification of the variants and the contexts in which the variant appeared. A variable rule is, in Dickerson's (1976) words, "a rule which captures the system underlying variable performance". This made it possible for the observation of variability as being very highly controlled by Competence and led, consequently, to a change in attitude about the nature of languages as not being well defined homogeneous objects.

Bickerton (1973) takes such a stand in suggesting that the fundamental assumption of variability analysis in primary speech data should not be dismissed as a feature of Performance but must, to some extent reflect the Competence of its producers. Bailey (1973) stresses the importance of the study of variation when he claims that "the study of patterned variation in its communicative life cannot be omitted from linguistic theory and practice without invalidating them".

In order to account for the regular patterns of covariation between the frequency of rule execution and contextual elements, Labov (1969) replaced optional rules with variable rules the procedure of which was formalised as follows:

> "To achieve this end, we associate with each VARIABLE RULE a quantity φ which denotes the proportion of cases in which the rule applies as part of the rule structure itself. The proportion is the ratio of cases in which the rule does actually apply to the total population of utterances in which the rule can possibly apply, as defined by specific environments, if it were a categorical rule of the type:
>
> $x \longrightarrow y \;/\; A \;\_\_\; B$
>
> The quantity φ thus ranges between 0 and 1; for all categorical rules .... it follows that $\varphi = 1$"

This formulation has since been developed into what is known as the Quantitative Paradigm, which, according to Cedergren and Sankoff (1974), focuses on variability as a central aspect of linguistic competence. In this model the quantity φ is replaced by a probability ratio P which is formalised as follows:

> "For each Variable Rule in every environment there exists a quantity P which represents the probability of rule execution ... It is a universal tendency for p to be in the form of:
>
> $p = 1 - (1 - P_o)(1 - \alpha)(1 - \beta) \ldots (1 - w)$
>
> where P_o is an input probability independent of context and $\alpha, \beta \ldots w$ represent the contribution of each relevant feature in the environment. This formalization assumes that each of the environmental factors affects the probability of rule application in a consistent and independent manner, regardless of the presence or absence of other features relevant to the rule" (Cedergren 1973).

The form of variable rules indicates the order of environments and their influences, e.g. a hypothetical rule of the type:

$$X \longrightarrow \langle Y \rangle \;/\; \begin{Bmatrix} a \\ b \\ c \end{Bmatrix}$$

states that X sometimes becomes Y most often in environment a, next in b, and least in c. The categorical rule of the traditional type:

$$X \longrightarrow Y \;/\; A \;\_\_\; B$$

differs from the variable rules in that the former specifies the **use** of Y in the context A—B 100% of the time. Social and stylistic constraints are incorporated into this model in the same way as linguistic factors, thereby permitting the comparison of linguistic and non-linguistic constraints and the investigation of language independence from the social system. Both categorical and variable rules are posited to be integral parts of the grammar of the individual. (For a detailed study of advances in variable rule methodology, cf. Rousseau and Sankoff 1978).

2.3.1 Application of Variability to Second Language Acquisition.

Variability was initially applied in the field of second language acquisition in the studies of the acquisition of the English sound system by Japanese speakers (cf. L. Dickerson 1975, W. Dickerson 1976). The central point of L. Dickerson's (1975) longitudinal study of 10 Japanese speakers studying English as a second language is that the learner's second-language system must be a system of variable rules if it is to account for the variability (wide assortment of pronunciations) in his production, the fluctuation between his in-class and out-of-class performance, and the regularities in his process of acquisition. The model used in this study is the variability model essentially used in the field of sociolinguistics and which is outlined in the previous sub-

section. The study is valuable in second language research both theoretically and practically. First, it captures the regular patterning of diversity in the learner's speech, giving the developing theory of interlanguage a firmer grounding. Second, the study provides insights to help the classroom teacher better understand and evaluate student performance in pronunciation.

W. Dickerson (1976) reports on a variability analysis of five Japanese learners of English /l/. One of the questions raised in this study is "Is the built-in wave mechanism of change operative in the individual's acquisition of a second language sound system?" Dickerson found out that the variable performance of each subject reflects a profound order controlling the acquisition process - a rule-governed order. Rule-governed order underlying language behaviour is typically referred to as a grammar. The interlanguage grammar is not a grammar of obligatory rules nor of optional rules. Obligatory rules produce categorical behaviour while optional rules yield random variation. Rather, the interlanguage grammar consists mainly of variable rules which capture patterned (vs random) variation which each subject exhibits at any one time and across time as the interlanguage becomes more target-like, i.e. approximates the target language system. One of the conclusions arrived at from the observation and discovery is as follows:

> "Sound system learning proceeds by gradual and systematic modification of rules in a newly developed grammar in the same way that a sound change is a comparatively slow but governed alteration of rules in a first language grammar. The variable rules in both cases are rules in

> native grammars. That is, the subjects of this particular study are native, fluent speakers of Japanese-English just as much as they are native, fluent speakers of Japanese. In short, change in either of these native systems involves a continuum of principled movement toward the target, not random movement nor jumps through a series of intermediate stages". (see also Gatbonton 1977)

In addition to the use of variable rules, Hyltenstam (1977) described variation at the syntactic level by means of implicational scales. (cf. also Andersen 1978a, and Platt 1979).

2.3.2 Implicational analysis.

Implicational analysis which was first applied to linguistic data by De Camp (1971) was introduced for social sciences research by Guttman (1944). It is also known as scaling, scalogram analysis and Guttman's scales. Implicational scales have been mostly used within socio-linguistics especially in the analysis of data from creole languages (cf. De Camp, 1971; Bickerson, 1975). As cited in Andersen (1978a) other uses have been in studying the standard-nonstandard continuum of usage in English (Stolz and Bills 1968), syntactic variation (Elliot, Legum and Thompson 1969; Ross 1973) and linguistic change (Bailey 1973; Bickerton 1973, 1975; Fasold 1973, 1975). Guttman (1944) declares that "scaling analysis is a formal analysis, and hence applies to any universe of quantitative data of any science, obtained by any manner of observation". The scalogram hypothesis as stated in Stouffman et al (1950) is that "the items have an order such that, ideally, persons who answer a given question favourably all have higher ranks on the scale than persons who answer the same question

unfavourably. From a respondent's rank or scale score we know exactly which items he endorsed".

In linguistics implicational analysis is used both as "a device for displaying variable linguistic data in ways which reveal underlying systematicity in the data and a theoretical explanatory model". (Andersen 1978a). It is a technique for correlating certain attributes of language use with individual speakers or groups of speakers of the particular language under study such that the presence of a particular attribute in the speech of the individual being studied implies the presence of certain other attributes in their speech" (ibid). For example the correlation between the presence or absence of the copula in the environments "Pre-Noun","Pre-Adj" and "Pre-Loc" can be displayed in an Implicational Table as in Table (1) where "+" means the copula is present and "-" means the copula is not present in the production of a number of subjects. The contexts are marked A-C respectively. The examined subjects, 1-4, make up the rows.

	A	B	C
1	-	-	-
2	+	-	-
3	+	+	-
4	+	+	+

Table (1)

If there are implicational patterns in the data, i.e. if the norm variant of the variable feature under study (here, the copula) is always used in the context A before

B, in the context B before C, then this is mirrored in the scale in such a way that in a certain row all plusses come to the left of the minuses.

This display, though useful, obscures certain aspects of individual's variation in the use of the copula. This can be remedied by displaying the actual individual's use of the copula in each of the environments (for example the percentage of utterances of the environment where the copula is present. (Table 2)

	A	B	C
1	0	0	0
2	25	0	0
3	50	25	0
4	50	75	0
5	75	50	25
6	100	75	50
7	100	100	75
8	100	100	100

Table (2)

Hypothetical production of the copula in (8) learners

If there is a significant portion of the subjects for whom the implicational order may not hold such a result will be clear from the implicational table and calculation of the "coefficient of reproducibility" (Guttman 1944). Mathematically, it is the result of dividing the total number of errors by the total number of responses, and it varies from 0 to 1. Andersen (1978a) provides a formula for the calculation of the coefficient of reproducibility (R).

$$R = 1 - \frac{\text{No. of errors (deviations)}}{\text{(No. of rows) (No. of columns)}}$$

A general guideline to the interpretation of this measure is that a coefficient of reproducibility higher than .9 is considered to indicate a valid scale. The Statistical Package for Social Sciences, SPSS (Nie et al 1975) provides some other useful measures in addition to the coefficient of reproducibility such as "the minimum marginal reproducibility" which "constitutes the minimum coefficient of reproducibility that could have occurred for the scale given the cutting points used and the proportion of respondents passing and failing each of the items. It is calculated by summing the marginals for each item and dividing this sum by the total number of responses. The difference between the coefficient of reproducibility and the minimum marginal reproducibility indicates the extent to which the former is due to response patterns rather than the inherent cumulative interrelation of the variables used. The difference is called the percent improvement and is actually the difference in two percents rather than the ratio itself. ... The final measure is obtained by dividing the percent improvement by the difference between 1 and the minimum marginal reproducibility. The denominator represents the largest value that the percent improvement may attain, and the resulting ratio is called the coefficient of scalability which also varies from 0 to 1, and should be well above .6 if the scale is truly unidimensional and cumulative."

2.3.2.1 Related research using implicational analysis.

a. Hyltenstam (1977, 1978a, 1978b, 1978c)

All the above papers are reports on a study made by Hyltenstam to map the development of some structural areas in

Swedish by adult imigrants of different language backgrounds; (35 different native languages were represented). In a study which is a combination of a cross-sectional and longitudinal approach, data from 160 learners of Swedish as a second language were collected on two occasions with an interval of five weeks. Hyltenstam uses the second cross-sectional as a longitudinal control of the first and the results of both are compared. Time 1 of the test was given three weeks after instruction had begun, while Time 2 was given after eight weeks of instruction. The same test paper using modified cloze procedures was used at both times. The syntactic areas chosen for investigation were:

a. sentence negation
b. inversion in interrogative sentences
c. subject-verb inversion after sentence-initial non-subjects
d. non-inversion in embedded clauses
e. the constituent order between object and adverbial.

However, only the first three areas are reported in detail. In this review we are going to concentrate on his discussion of sentence negation only since it is the only structural area related to what we are investigating.

Swedish requires that the neg particle be placed after the main verb in main clauses,

e.g. Kalle kommer inte idag
(Charlie comes not today)

while it is placed before the verb in subordinate clauses.

e.g. Det är Skönt att Kalle inte Kommer idag
(It's fine that Charlie not comes today)

When an Aux is present the neg particle follows it in main clauses and precedes it in subordinate clauses.

Negative Placement rule (Hyltenstam 1977)

$[X - NEG - V^{fin} - Y]_S$ main

SD 1 2 3 4 $\Rightarrow$

1 3 2 4

Deviations in the rule are possible but all test items concurred with this rule.

The hypothesis Hyltenstam wanted to test was "whether the individuals in the study can be said to be at different points in a plausible development towards the target norm" (1978b). Hyltenstam chooses the variable paradigm not only because it provides techniques for the description of learners' variation but also because variation can tell the researcher something about development. Hyltenstam found that two ranks could be constructed for accuracy of negative placement in main clauses and in subordinate clauses. In main clauses, all Aux verbs were negated according to the rule but main verbs were not. In subordinate clauses, the case was just the opposite. There the negatives were placed appropriately for main verbs while negs used with Aux were incorrect. In other words, the two ranks were almost exactly reversed. The same pattern held for Time 2 with the exception that more learners gave correct responses than at Time 1. What appears to be happening is that the learners put the neg in front of all verbs whether in main clauses or subordinate clauses, whether an Aux preceded the verb or not. This gave them correct responses to sentences with Aux in main clauses and incorrect

responses with Aux in subordinate clauses with converse results where there is no Aux.

Hyltenstam sets the starting point of acquisition as the input structure of the Swedish Negative Placement rule and the end point of acquisition as placement of neg after the finite verb in main clauses and before the finite verb in subordinate clauses. Using implicational scales to check individual variable behaviour he finds that the variation is highly regular across the 160 learners studied. He concludes that development towards the norm target was regular over all his subjects and that the development followed a continuum of increasing complexification of the type suggested by Corder (1977) (see 2.2.6 above). This interlanguage continuum is similar to that of first language except that the interlanguage continuum is characterised by interference structures (see figure 5 above). The learners can be identified along the continuum according to the parts of the neg rule they have acquired and their progress on the continuum can be shown in line drawing as in Figure (6).

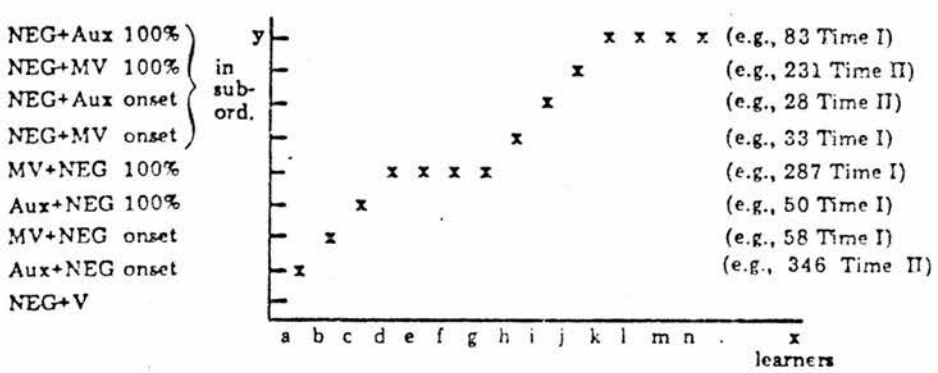


Figure (6)

The build up of the interlanguage continuum for syntax of negation with Swedish as the target language.

Hyltenstam (1977)

Learners who have only acquired the neg after the Aux in main clauses would appear at the lower left. If the learner had acquired both Aux + neg and MV + neg placement, he would be on the second step of the continuum. Learners who had acquired all the rules would appear at the top right-hand corner of the continuum.

This highly regular route in acquiring negatives is undifferentiated by background language, length of education, knowledge of foreign languages etc. As for the role of the mother tongue, Hyltenstam holds the same view as that of Corder and Kellerman that of language compatibility and language distance.

Hyltenstam sees movement up the continuum through a general theory of markedness. (See Hyltenstam 1978a, 2.2.6 above).

b. Platt (1979)

In this paper Platt reports on research he has carried out on the copula occurrence in Singapore English (SE) which "exhibits many features similar to those found in a post-creole continuum situation". Platt declares that the presence or absence of the copula in various environments is an important variable in SE and an indicator of a person's position on the continuum.

The data are based on recordings of 59 Singaporeans of different language backgrounds, Malay, Tamil and some Chinese languages. Using implicational scales to analyse the data, he arrives at the acquisition order: Pre-Locative, Pre-Verb-ing, Pre-Predicate Nominal, Pre-Adjective, an order which is quite unlike that arrived at by Labov (1969) which

is Pre-NP, Pre-Predicative Adjective, Pre-Locative, Pre-Verb-ing. Platt does not give the actual individual's use of the copula but rather gives three categories, acquired, variable, absent, which leaves the category "variable" undefined and could be explained either way. (Platt's study will be discussed in detail in the discussion of the results of the present research (6.1.3 below).

Dividing the speakers into groups on the basis of education, Platt finds the type of education, i.e. whether it had been in English or not seems to affect the pattern of the scale.

Regarding variability,Platt concludes that variable copula insertion does not necessarily imply that speakers have a variable rule of copula insertion. Quoting Bickerton's (1973) suggestion that for speakers with inherent variation "two quasi-equivalent rules (i.e., an 'old' rule and its replacement) would apply alternatively for those persons in the process of losing the former and acquiring the latter". Platt decides that this statement would seem to be valid for copula insertion in SE.

2.4 Strategies of learning and communication.

A strategy is defined by Brown (1980) as "a particular method of approaching a problem or task, a mode of operation for achieving a particular end, a planned design for controlling and manipulating certain information". In the field of language learning two types of strategies have been recognised: learning strategies and communication (communicative) strategies.

One of the recognised problems of the study of strategies is that it is sometimes very difficult to pin down the production of a certain non-target like utterance as due to the use of one certain strategy, especially in the case of first language transfer and second language overgeneralisation. Some second language learners' errors could only be explained as the interaction of both strategies (cf. Andersen 1978b). Another problem is that it is sometimes difficult to decide whether a certain strategy at work is to be labelled as a learning or a communicative one.

2.4.1 Learning strategies.

Corder (1977) defines learning/acquisition strategies as those "referring to mental processes whereby a learner creates for himself or discovers a language system underlying the data he is exposed to", or, to put it in a nut shell, they are methods "of perceiving and storing particular items for later recall" Brown (1980). Brown (op cit) lists four learning strategies, transfer, interference, generalization, and simplification. Brown sees these strategies as manifestations of one principle of learning - the interaction of previously learned material with a present learning event. These terms are also used to refer to communication, therefore they will be discussed twice. Brown regards interference as negative transfer and over-generalization as the negative subset of generalization therefore we will discuss them in pairs.

2.4.1.1 Generalization, Overgeneralization (Intralingual transfer)

To generalize means to infer to derive a law, rule, or conclusion, usually from the observation of particular instances. Taylor (1975a,b,c) defines syntactic overgeneralization as "a process in which a language learner uses a syntactic rule of the target language inappropriately when he attempts to generate a novel target language utterance." For example

e.g. 1. *I don't sure.

2. *He do not like apples.

Such errors show that the learner has mastered the mechanics of the rule but has not yet learned the correct distribution of the rule or the exceptional cases where the rule does not apply. Since the use of generalization implies success in using a structure we are going to restrict our discussion to overgeneralization as most researchers have done. (cf. for instance Taylor 1975,a,b,c, Tarone et al (TCD) 1976).

Overgeneralization errors in the utterances of the language learner suggest active participation on his part in the learning process by exercising his interlanguage creatively instead of imitating what he hears around him or transferring native language structures. Taylor (1975c) regards the use of overgeneralization by second language learners as a strategy for reducing the learning burden since in doing so he "relies on a target language rule of great generality and which he already knows and avoids learning the appropriate rule". Evidence from Taylor's studies suggests that reliance on overgeneralization is directly proportional to proficiency in the target language.

Larsen-Freeman (1975, 1976) has also demonstrated that the strategies of the learner, or at least their influences on the learning process, change as the learner's proficiency in the target language increases.

Tarone et al (1976) considered overgeneralization as a communicative strategy, but in a later paper Tarone (1977) seems to have left it out.

2.4.1.2 Simplification.

It is worth pointing out that language acquisition, as many linguists believe and is supported by logic, is one of elaboration or complexification and not one of simplification (cf. for instance, Corder 1975,1977,1978, 1979). This is logical because one cannot simplify what he does not possess. The simple grammar or code used by language learners is not arrived at by a process of simplification of the target code (cf. Corder 1979 and 2.2.6 above).

Both Richards (1971, 1975) and Brown (1980) agree in considering simplification as a universal learning strategy. Richards (1975) defines simplification as "increasing the generality of rules through extending their range of application, and through dropping rules of limited applicability". He considers overgeneralization and analogy as instances of the same process. Brown (op cit) defines simplification as "the process of 'uncomplicating', of reducing events to a common denominator, to as few parts or features as possible". He states that simplification is synonymous with generalization. Later

in the same paper, Richards seems to agree with Dulay and Burt (1974) that simplification is the result of a general learning strategy common to both children and adults. This is quite in line with Corder's (1977) argument that "simplification may be the result of a learning strategy or process" but "it cannot be a learning strategy itself, though it may well be a strategy of communication".

2.4.1.3 Transfer, Interference (Interlingual transfer).

Transfer is a general term describing the carry over of previous performance or knowledge to subsequent learning. Two types of transfer are recognised; positive transfer which takes place when the prior knowledge benefits the learning task; and negative transfer which is referred to as interference and which occurs when the previous performance disrupts the performance on a second task. For the purpose of this study the term "transfer" is to be used to refer to any type of first language influence as is commonly used in the literature.

The role of transfer has been commonly stressed in second language learning sometimes to the extent that some have viewed second language learning as exclusively involving the overcoming of the effects of the native language. This means that language transfer is looked upon as an exclusively learning strategy. This stress on the role of transfer in the learning of a second language is not surprising since native-language interference is surely the most immediately noticeable source of error among second language learners. But how much importance

one is to attach to the role of the mother tongue in the learning task has been a matter of much controversy. While some researchers deny the mother tongue any influence on the learning process, others argue that it plays a crucial part.

A more realistic attitude towards language transfer is taken by some linguists who recognise both the similarities between the language of first language learners and that of second language learners as well as the evidence of the mother tongue's influence on the learner's interlanguage. Although much of the evidence of mother tongue transfer can be explained as due to a communication strategy, many still recognise some of it as a learning strategy (cf. Taylor 1975; Corder 1978b).

As a learning strategy, Taylor (op cit) thinks that its use stems from the learner's strong motivation to reduce his learning burden because through reliance on his native language he avoids learning the target language rule. This learner's reliance on transfer is obviously due to his lack of familiarity with the target language structure, therefore one would expect that the more the learner becomes familiar with the target language the less he will rely on his mother tongue which is exactly what Taylor's studies have shown. Contrary to overgeneralization reliance on transfer is inversely proportional to proficiency in the target language. However, there are other factors that influence the learner's willingness to rely on the native language such as the context of learning and the relatedness or comparability of the two languages to each other (cf. Kellerman 1977; Corder 1978b, c)

2.4.2 Communication Strategies.

Corder (1977) defines communication strategies as devices which the learner employs to exploit "whatever linguistic knowledge he possesses to achieve his communicative ends". Váradi's (1973) investigation of communication strategies has been the base for later research in this field (cf. Tarone et al 1976, Tarone 1977) All the recognised strategies fall under Corder's (1978b) dual classification of message adjustment and resource expansion strategies, the former signalling negative attitude on the part of the learner towards the communication task while the latter signal the learner's willingness to actively participate in the communication task. For this reason, Corder (op cit)calls the first "risk-avoiding" and the second "risk-taking". Though the latter most likely result in unacceptable utterances they are necessary for learning to take place because without their employment the learner will not enlarge his repertoire in the target language. For the purpose of this research we are going to discuss the strategies outlined by Corder (1978b) and Tarone (1977) since they are the most up-to-date and since the latter is a reorganisation of a previous piece of work carried out by the author herself. (see figure 7).

2.4.2.1 Risk-taking Strategies (Resource-expansion).

a. Conscious transfer

Corder (1978b) distinguishes between transfer as a learning strategy (restructuring) and as a communicative strategy (borrowing) and suggests that the only way to

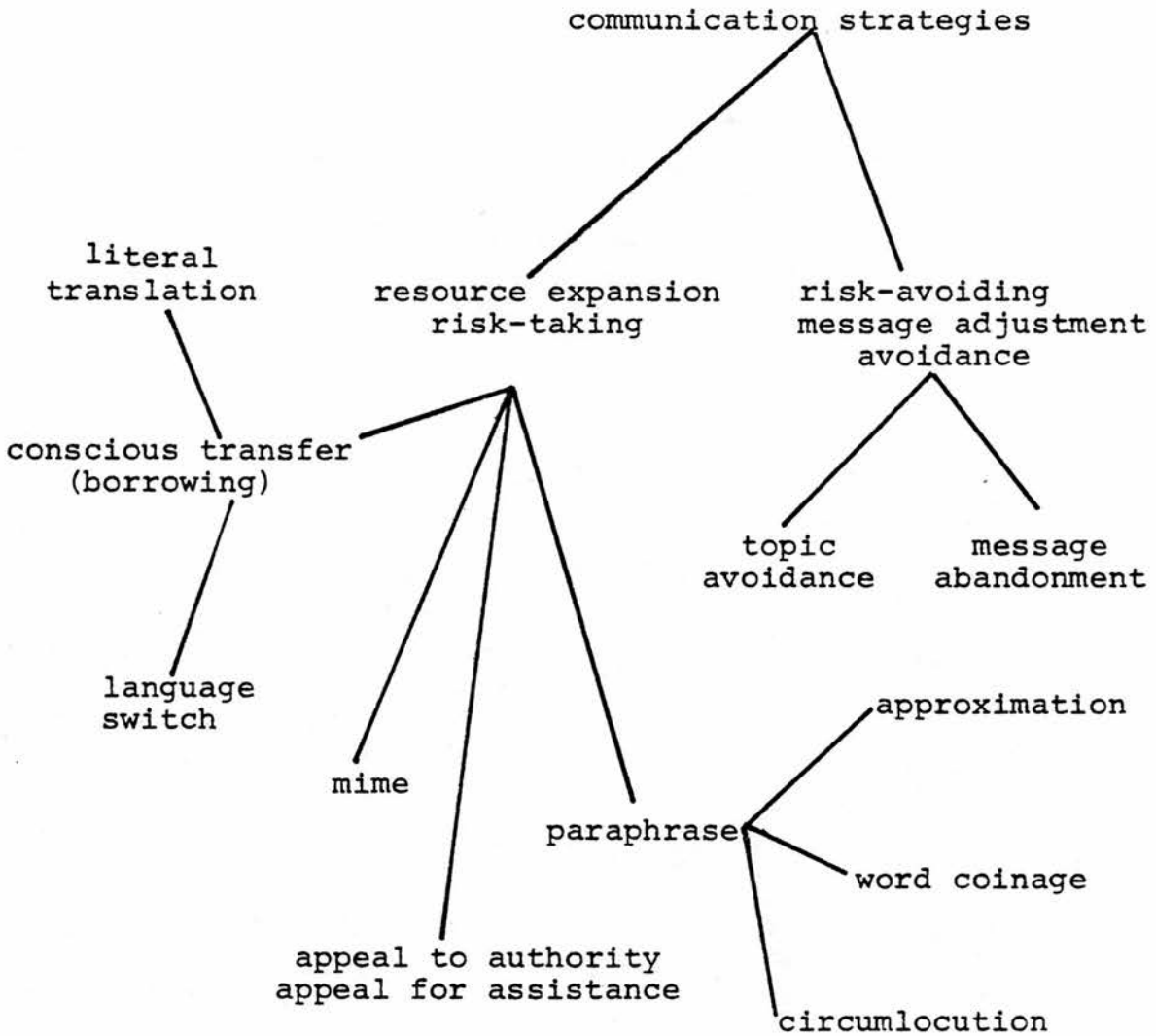


Figure (7)

distinguish one from the other is through the systematic nature of transfer features and the nonce occurrence of borrowings. As for Tarone, I think, the use of transfer as a communication strategy is implied in Tarone's use of the word "conscious" to describe it. Interlingual transfer as a communication strategy is succintly outlined by Newmark et al (1968).

> "The adult ... can want to say what he does not yet know how to say, and he uses whatever means he has at his disposal. It is easy to see how the phenomenon of interference can result from his attempts to do more than he has yet learned to do in the new language".

This strategy may take the form of literal translation or in extreme cases switching to another language. An example of literal translation is the following sentence written by an Arab learner of English.

*Was Ali here, meaning Ali was here

b. Paraphrase.

Tarone (1977) defines paraphrase as "the rewording of the message in an alternative, acceptable, target language construction, in situations where the appropriate form or construction is not known or not yet stable." Tarone (op cit) points out that she no longer believes that paraphrase is a form of avoidance. She subdivides paraphrase into:

1. Approximation which is the use of a single target vocabulary item or structure, which the learner knows is not correct, but which shares enough semantic features in common with the desired item to satisfy the learner. An example for this is the use of "high-coverage words" or "low-coverage words" such as "worm" for "silkworm" or "labour" for "work". (Examples from Levenston, 1971, quoted by Tarone). What differentiates this strategy from overgeneralization is the learner's awareness that the term or rule he is using is wrong. In over-generalization the learner may or may not be aware of this.
2. Word coinage occurs when the learner makes up a new word in order to communicate a desired concept. For example,

a Turk learning Arabic as a second language who did not know the Arabic word for "bull" made up a term in Arabic which, literally translated, means "cow man".

3. Circumlocution is a combination of Váradi's two strategies, circumlocution and description. This is a wordly extended process in which the learner describes the characteristics or elements of the object or action instead of using the appropriate target langugage structures. Tarone's example is that of a Turk describing a waterpipe (hubble-bubble), "She is, uh, smoking something. I don't know what it's name. That's uh Persian, and we use in Turkey a lot of."

c. Appeal for assistance.

This strategy includes all the learner's attempts to seek help from his interlocutor or even from a dictionary.

d. Mime.

This means recoursing to paralinguistic behaviour, i.e., nonverbal communication strategies.

Other risk-taking strategies have been reported by Tarone et al (1976) and Brown (1980) such as over-generalization, overelaboration, and pre-fabricated patterns.

2.4.2.2 Risk-avoiding strategies.

Message Adjustment (Corder), Avoidance (Tarone)

Tarone (1977) subdivides avoidance into two strategies:

a. Topic avoidance.

This occurs when the learner simply does not talk about concepts for which the vocabulary is not known.

b. Message abandonment.

The learner begins to talk about a concept but is unable to continue.

2.5 Research in English Negation.

In the past several years massive research has been done on the acquisition of English negation by speakers of different languages. This research represents what is perhaps the most comprehensive account of any aspect of second language. Schuman (1978) gives a comprehensive review of a major part of this research with more concentration on the acquisition of English negative by native speakers of Spanish. Here, we are going to review some of the findings in this field. We are going to start with Klima and Bellugi's study because it is the study that has always been used as a base of comparing the acquisition of negation in English by second language learners with that of learners of English as a first language.

2.5.1 The Klima and Bellugi Study.

In a longitudinal study of English negation by three children, Klima and Bellugi (1966) arrived at three stages which they decided a learner follows in acquiring English as a first language.

Stage 1

$$\left[\begin{Bmatrix}\text{no}\\\text{not}\end{Bmatrix} - \text{Nucleus}\right] \text{ s} \qquad \text{or} \left[\text{Nucleus - no}\right] \text{ s}$$

e.g.

No singing
Not a teddy bear
More ... no.

Stage 2

$$S \longrightarrow \text{Nominal - Aux}^{\text{neg}} - \begin{Bmatrix}\text{Predicate}\\\text{Main Verb}\end{Bmatrix}$$

$$\text{Aux}^{\text{neg}} \longrightarrow \begin{Bmatrix}\text{Neg}\\\text{V}^{\text{neg}}\end{Bmatrix}$$

$$\text{Neg} \longrightarrow \begin{Bmatrix}\text{no}\\\text{not}\end{Bmatrix}$$

$$\text{V}^{\text{neg}} \longrightarrow \begin{Bmatrix}\text{can't}\\\text{don't}\end{Bmatrix}$$

e.g. I can't see you.
I don't want it.
No pinch me.
Don't leave me.
That no mommy.

Stage 3

$$S \longrightarrow \text{Nominal - Aux - } \begin{Bmatrix}\text{Predicate}\\\text{Main Verb}\end{Bmatrix}$$

$$\text{Aux} \longrightarrow \text{T - V}^{\text{aux}} \text{ - (Neg)}$$

$$\text{V}^{\text{aux}} \longrightarrow \begin{Bmatrix}\text{do}\\\text{M}\\\text{be}\end{Bmatrix}$$

Transformations

1. Optional be deletion:
   NP - be $\Longrightarrow$ NP

2. Do Deletion

do - V ⟹ V

e.g. I didn't did it.
Donna won't let go.
This not ice cream.
It's not cold.
I am not a doctor.

Klima and Bellugi's first stage actual existence has been the centre of discussion within first language literature. Lord (1974), for instance, found no evidence of this stage, while Bloom (1970) attributed what evidence he had found of first position negation to either anaphora, where the negative element referred to a previous utterance, and not to the one which followed it or deletion of sentence subjects. Both Lord and Bloom are quoted in Schumann (1978).

2.5.2 Norwegian Speakers.

Ravem (1974) reports the development of negation in his daughter over a ten month period with supplementary data derived from an earlier five month study of his son. Ravem argues that utterances such as "Not like it" found at the earlier stages should be interpreted as cases of subject noun phrase deletion rather than "Neg + Nucleus" . He dismisses the four instances of negative-external utterances as mere curiosities. In utterances that take "do + neg" in English, both learners place "not" before the main verb with the son showing more variation in the verbs used. "Not" began to be replaced by "don't" at the beginning of the seventh month of exposure, but Ravem argues that "don't" here is an unanalyzed unit ("mono-

morphemic negative form" as Schuman calls it).

In Norwegian the negative element is placed after the main verb, but such a form does not occur. In an earlier report Ravem (1968) concludes that since the first language of the learner is closely related to the second the first language is a source that the learner can draw on. He expresses the same attitude in a third report (Ravem 1978). Ravem stresses that the occurrence of transfer does not imply acceptance that language learning is habit formation but the adoption of an "active mental organisation theory". In all his reports, Ravem highlights the striking similarities between natural acquisition of second and first languages.

2.5.3 Spanish Speakers.

1. Stage I–pre-verbal negation rule.
   a. *No + verb* constructions–*No saw him*
   b. *No + phrase* constructions–*No in Colombia*
   c. Some *don't + verb* constructions–*Don't like*
2. Early Stage II–preverbal and post-auxiliary negation rules.
   a. Dominant use of unanalyzed *don't + Verb* constructions–*I don't saw him* (=didn't)
   b. Some *cop/aux + negator* constructions–*The dog can't bark*
   c. *No/Not + Phrase* constructions in variation–*No this week. Not today*
3. Mid-stage II–Pre-verbal and post-auxiliary negation rules.
   a. Decline of *No + Verb* constructions
   b. Expansion of *cop/aux + negator* constructions–*I'm not old enough, I will don't see you tomorrow* (=will not)
   c. Increase of *Not + Phrase* constructions over *No + Phrase* constructions
4. Late Stage II–loss of pre-verbal negation and establishment of English post-auxiliary negation rule.
   a. Innovation of past/present distinction among negative forms (i.e. the use of past tense *cop* and *aux* and *do*)–*He wasn't talking to the teacher, I didn't went to Costa Rica*
   b. Elimination of non-standard negative forms (i.e. *no + phrases* and pre-verbal negation)
   c. Restructuring of unanalyzed *don't* (i.e. the appearance of *didn't, doesn't, do not* etc.) such that *do* is used as carrier of both negation and tense
5. Stage III–Final elimination of all non-standard interlingual forms and the establishment of standard English negation.

Table (3)

Stauble's Analysis of the Sequence of Acquisition of English Negation by Native Speakers of Spanish.

Schuman (1978) summarizes the acquisition of negation as follows (see Table 3) above. Initially the negation is preverbal with the subject noun phrase sometimes present and sometimes absent. Gradually unanalysed "don't" begins to replace "no". Later post-auxilliary negation appears beginning with "isn't" and "can't" and gradually extends to other auxiliaries. What Schuman finds striking about the English negation of Spanish speakers is "its strong tendency to be preverbal".

2.5.4 Japanese Speakers.

Milon (1974) examined the speech of a seven year old Japanese boy who had recently arrived in Hawaii. The study is a longitudinal one extending to a period of more than six months, using video-tape recordings. Milon finds striking similarities between the developmental substages of English negation described by Klima and Bellugi (1966) and the development of negation in the speech of his subject. Milon concludes that if there is more evidence that other young non-native speakers develop negative English systems in the same way as his subject has this "would indicate that not only native speakers but also second language learners - at least up to a certain age - have access to universals of language acquisition". Milon adds that some preliminary work which they have done with two Korean children indicates that his subject's developmental progress is by no means unique.

Schumann (1978) receives Milon's claims with great scepticism. He raises questions about how Milon defines his stages and counts the utterances in each stage. He also

raises the question of the possibility that Milon's subject's sequence might to some extent reflect that of Hawaiian Creole.

2.5.5 German Speakers.

Wode (1976) reports on a study of four German children learning English in a natural setting. In the data he presents, there is no evidence of Klima and Bellugi's first stage. The data also shows a tendency for post-verbal negation which is more like negation in German. There is some evidence of pre-verbal negation in the form of unanalyzed "didn't" preceding both auxiliary and main verbs. Wode takes the unique attitude among the researchers that "L_2 children indeed, may, or always do, make use of prior L_1 knowledge" and that this is done in a systematic way.

Rounding up the evidence he has reviewed Schuman (1978) hypothesizes that "'no V' negation will be most extensive and persistent with speakers whose native languages have pre-verbal negation ... and that it will be much less extensive and persistent in the speech of learners whose native languages have either late or post-verbal negation." Schuman also introduces what he calls "the two force hypothesis" which states that the 'no V' form is promoted by two forces, natural development and interference.

2.5.6 Arabic Speakers.

First of all, it would be useful to point out that in Arabic the negative particle is never placed after the verb. (For a detailed discussion of negation in Arabic see 1.5.3.2 above

Hanania (1974) reporting on a case study of an adult native speaker of Arabic in an English-speaking environment learning English both formally and informally defines the following stages of the development of negation in her subject after eighteen months of exposure to English

	no + N	no English no rain
	V + ing	not raining
not +	adj	
	adv	not here
(I) + don't + V		Don't eat I don't know
I + can't + V + (object)		I can't speak English. I can't understand.

Nielsen (1974) studies early stages in the non-native acquisition of English syntax by three children of different native languages, Arabic, French and Spanish. The children were attending schools in the U.S.A. when the data were collected. Data were obtained during a period of just over six months.. Nielsen defines four stages in the acquisition of negation of her three children (see Table 4)

Comparing the development of Nielsen's Arabic speaker (Adnan) with that of Hanania's subject one can obviously place Hanania's subject at Stage 2 of Nielsen's. In spite of her eighteen months of English both formally and informally, the subject's acquisition of the second language was very slow and her creative use of the language was still very limited at the end of the period.

DEVELOPMENT OF THE NEGATIVE

Pascal (French)	Ernesto (Spanish)	Adnan (Arabic)
Stage 0 No . . . boy (Are you a baby?)	Stage 0 No	Stage 0 I no know. I don't know.
Stage 1 Me like no this. This no good (Bellugi St. 3) Me can't push (Bellugi St. 3)	Stage 1 Me no speak Saudi. Me no funny.	Stage 1 Me no like it. Me no speak Spanish. Me no funny.
Stage 2 Is not bicycle. They can't ride the bike. I like no this sun. I want no do that. I go no hit you. Don't do (it).	Stage 2 No, is not. Not do it cow (The cow can't do it). Me not asleep Him not do it. She not understand. Ostrich not animal. Don't move it.	Stage 2 Is not book is dictionary. I can't see (Bellugi St. 3) Me not see. Me not like this boy. Mom not understand English. I no.
Stage 3 I don't want a umbrella. I don't like. I say don't put the glass on. You don't like the girl. My mother don't like. I can't see you. She can't ride the bike. Is not down? (Isn't the escalator going down?)	Stage 3 I don't like Fred. He don't have a story. I don't want no cowboy (to be a cowboy) I don't have any coat. He don't eat me. I not remember. He can't do that.	Stage 3 I'm not like a snake (don't like) I'm not want it. I'm not very good. I'm not finish. I'm not have fun. Is not closed. Is not catch him. Mommy is not have ice-cream. I can't tell it. I don't believe it. I tell him don't do it that.
Stage 4 I don't know what I do. I don't know who did it. My sister don't know to ride a car. He don't know his name (her) My dad don't have like that (motorbike) My sister don't want I go to school. My dad don't want I play. It doesn't have lights. My is not break (broken) Is not George home (It's not George's home) I don't remember where.	Stage 4 I don't know where I going. I don't know how to spell it. I don't know anything about it. He don't know my brother's name. I don't want to do it backwards. Nobody told me anything. Never talk to me. (He)	Stage 4 I'm not gonna need the gloves. I'm not gonna talk about that picture. He's don't die. You don't have a car. He don't catch somebody. It don't open. It don't broke. I don't saw it. He don't saw it. It can't broke. I can't ride it. I don't know how to ride a truck. Why d,you not get him? A girl never talk to me.

Table (4)

Nielsen (1974)

What is interesting in both these studies is that both researchers agree that second language development is similar to that of first language, and that the differences are mainly in rate rather than in kind. Nielsen also states that the acquisition of second language syntax follows strikingly similar stages of development regardless of the mother tongue.

Whatever "interference-like goofs" the learners had made Nielsen dismissed as communicative errors.

2.6 Integration of the Literature into our Study.

The objectives of this study are to make a formal structural description of the language learners' language. It is essentially a question of determining the type of English that is acquired in the Iraqi Secondary schools at different stages of its development. One of the main objectives of this study is to discover the spectrum of development of the Iraqi students' interlanguage and how movement from one end to the other takes place. Another objective is to find out whether this movement towards the upper end of the spectrum involves processes that are similar to or different from those employed by learners of English in natural "informal" environments and those employed by speakers of language backgrounds other than Arabic. This will lead to the realization of another objective, namely to try to define the role the mother-tongue plays in the learning process, and try to find an explanation of the evidence of mother tongue influence on the second-language learners' performance. In view of this, we can now indicate the ways in which the review of literature presented in this chapter can be integrated in this study.

First, these objectives will be reorganised in the forms of testable sub-hypotheses a number of which will form a group of hypotheses each covering a certain aspect of this study. In 3.4 above these objectives are grouped into 3 groups of hypotheses, the first pertaining to the dimension

of orders of acquisition/accuracy in terms of intra-linguistic syntactic parameters irrespective of the language background or conditions under which learning takes place. The second group addresses the incorporation of the sequences arrived at by the testing of the first group into a full scale continuum of the structural area under investigation. The third and last group of hypotheses is dedicated to trying to explain the way these continua seem to develop.

In the empirical part of the study each of the individual hypotheses that can be subjected to statistical analysis will be tested. Then, we will adopt analytical techniques that have been tried elsewhere in second language acquisition research.

In testing the first group of hypotheses pertaining to the dimension of acquisition/accuracy orders attempts will be made to answer questions such as:

1. Is the sequence the same both cross-sectionally and longitudinally or are there two different sequences?
2. Does this sequence correlate significantly with the pedagogical sequence of the items in the learners' text-books?
3. Is this sequence specific to Arabic-speaking learners or is it universal?

In this connection, the review of literature has provided us with well-documented models and empirical applications to emulate. It is of interest to note that, with the exception of Platt (1979), there has been no study of acquisition/accuracy order of the copula in second language

acquisition. As for the area of negation though there is no study of a sequence proper, such sequences can be worked out from the immense evidence available in the studies of stages of development of this structural area. Hence, we can expect to find attributes for each given structure to have ordered sets of natural groups or linguistic environments. In view of these expectations, we are going to extend the variability model by the Implicational Analysis technique which requires that the set of linguistic attributes or environments be ordered implicationally, i.e. that the acquisition of a more difficult item or notion implies the acquisition of a less difficult one.

The sequences arrived at in the testing of the hypotheses of group one will be incorporated into full scale continua representing the development of the structural areas under investigation from the starting point to the time the learners acquire the target-like use of the structure. This is the area on which the hypotheses of group two are centred. We have reviewed the different points of view concerning the development of the language-learners' language. Out of the different types of continua reviewed we have opted for the one recommended by Corder (1977, 1978b) which has given rise to the concept of developmental interlanguage continua in which it is believed that the starting point for all language learning is not the fully complex code of either the mother-tongue or the target language but some basic, possibly universal code and that the acquisition of a target language develops out of this by a process of increasing elaboration. We believe that this type of continua accounts

successfully for evidence of the mother-tongue in the learners' performance as well as similarities between the early performance of language learners and pidgin speakers. The studies of negation will enable us to form an opinion about the universality of language development. In discussing the learners' movement up and down the continuum according to the formality of their style, studies such as those made by Krashen and Bialystok will be of relevance. Krashen's Monitor Model will be used as a basis for explaining variability according to the formality in the learners' style.

The role of the mother-tongue cannot be defined without involving strategies of learning as well as those of communication. This is so because there is a lot of disagreement as to whether to consider evidence of the mother tongue in the learners' performance as that of a learning strategy or a communicative one or even both.

The third group of hypotheses is concerned with explaining the process of complexification the learners' language undergoes and the possibility of explaining it through a theory of markedness. The works of Hyltenstam will feature in this discussion even though the second language studied there is Swedish.

CHAPTER THREE

Elicitation Procedures and the Pilot Experiment.

3.1 Elicitation Procedures.

An elicitation procedure is any procedure which causes a learner to make a judgement about the grammatical acceptability of a form or provokes him into generating a linguistic response based upon the grammar of his interlanguage. In deciding what techniques to employ for elicitation it is first necessary to decide what kind of data one wants to elicit, i.e., whether "textual" or "intuitional" data (Corder 1973b). If the researcher wants an overall picture of the different aspects of the learner's interlanguage he has to use techniques that elicit both kinds of data because none of them alone can be judged to represent the learner's language.

An important characteristic of such techniques is that they should not make it possible for the subject to avoid the structure being investigated because he is not sure of it or he does not feel like using it. Moreover, they have to force the learner to produce enough instances of the structure to provide evidence for the research. In other words, they should provide information about the subject's comprehension as well as allow the researcher to control the subject's linguistic output (Naiman 1974).

One of the important problems connected with the concept of second language learner competence and its

interpretation is its relation to conscious and non-conscious knowledge of a language (see Corder's two types of data above). If Krashen's dichotomy of language acquisition and language learning is correct, it has some important implications for the choice of data on which to base hypotheses of second language learner competence. Data where the learner is allowed time to reflect on - and perhaps reconsider initially untarget-like behaviour will not be representative of his actual competence, i.e. acquired competence, as it is assumed that he would have had time to monitor his speech against rule knowledge. Therefore the data should represent whatever kind of knowledge the subject may possess, implicit, explicit or other.

3.1.1 Techniques for Collecting Textual Data.

3.1.1.1 Direct Translation.

An elicitation procedure suggested by Corder (1973b) is one that requires direct translation from the native language to the target language. This method has several advantages.

a. It forces the subject to attempt to produce the desired target language structure. And so by forcing the subject to form a structure which he has not completely mastered, the researcher can gain insights into how the subject understands the language to operate and how he organises new syntactic constructions in his interlanguage (cf. Taylor 1975a).

b. The researcher is sure that the learner understands the semantics of the structure he is required to produce.

c. It has been proved as "a useful approach for diverting the informants' focus of interest from the object of the test and indeed in disguising this object". (Quirk and Svartvik 1966).

d. A statistical advantage is that "in a translation task the researcher can zero in on specific syntactic rules which he would like to test. The investigator controls the number of obligatory occasions for error". (LoCoco 1974).

Taylor (1975) reports that the argument against the use of direct translation is that it "loads" a study in favour of transfer and interference. Yet many researchers have successfully used this technique for elicitation interlanguage data acknowledging that its advantages more than overweigh its shortcomings. Taylor himself (1975a) found evidence of enough strength of the power of overgeneralization over the transfer strategy in a translation task to merit its use.

Another shortcoming of a translation task is the problem of eliciting those structures that fall under Catford's (1965) [cited in Bassnett-McGuire 1980] category of linguistically untranslatable. These include structures in the source language that have no substitute in the target language and vice versa. Though a competent translator can adequately translate them once the rules of the target language are applied, such structures may prove to be too difficult for language learners at certain levels of proficiency to translate. Such structures will certainly be so for learners at the proficiency level of

our subjects. For example, in Arabic, there is no special verb form for the progressive as there is in English. The concept of the progressive is expressed peripherally through the use of adverbs equivalent to those used in English with the imperfect form of the verb. From our experience this concept has always proved too difficult for Arabic-speaking learners at the level of our subjects to grasp.

For the purpose of this research, we believe that though translation is going to somewhat limit the scope of the research through the non-existence of certain aspects of negation in the mother tongue, these limitations are not enough to influence the usefulness of this task for tapping the learners production grammar or explicit and other knowledge.

3.1.1.2 Recognition and Correction.

The need now arises for a technique that elicits data to support that elicited by the use of the translation task. A task that has been very widely used is an optional choice task. Such a selection task may be useful if the researcher wants to know whether the subject can or cannot perform some target language option, while for descriptive purposes the researchers wish to know what actual rules he uses. Corder (op cit) does not rule out the possibility that a subject would wish to reject all the proferred alternatives in a test item, correct or incorrect, because none of them were generable by the grammar of his interlanguage. In other words, production wise this task is restrictive

since it limits it to what the researcher believes the subject would possibly produce rather than giving him the freedom to use his own rules which the researcher may not be aware of.

A mid-of-the-way alternative is one that will keep the recognition part of the task, while at the same time, gives the subject the freedom to use his own rules in producing the "correct" structure. In such a task the subject is not asked to make judgements of grammatical acceptability in terms of target language rules, but in terms of his own interlanguage. In other words, the subject is given a sentence where there is a violation of a target language rule and asked to judge whether he finds it grammatically acceptable (right) or not (wrong); if it is the latter, he is asked to give the "correct" sentence. The non-target-like structure used is assumed to be either one of the subject's interlanguage somewhere in the process of its development or one of the mother tongue, where it is different from that of the target language. With such a technique the researcher not only gives the subject a chance to recognise his own "language" but also leaves the door open for him to expose any aspect of his interlanguage the researcher is not aware of.

3.1.2 Elicitation of Intuitional Data.

Both of the above-mentioned tasks tap the subjects' explicit and other knowledge. What the researcher needs is to get some insight into the relationship between the comprehension and production grammar, or the acquired and learned systems, which will need a sample of the subject's

spontaneous production. In the collection and analysis of spontaneous speech data the researcher is faced with many problems such as:

a. the necessity to collect a great deal of data, much of which is redundant, without even getting enough instances of the structure under investigation through the subject's employment of different risk-avoiding strategies.

b. the description of an infinite amount of speech and still reflecting only part of the speaker's competence, since his ability to comprehend the language exceeds his ability to speak it (Swain et al 1974).

Thus what the researcher has got to do is to get spontaneous data, while at the same time control the subject's output. An alternative approach to spontaneous speech collection which has both these characteristics is elicited imitation. This technique has been successfully employed by many researchers in order to elicit controlled spontaneous production (cf. for instance, Clay 1971; Slobin and Welsh 1973 ; Naiman 1974; Hamayan et al 1976).

The fundamental claim of elicited imitation is that "in order for an individual to imitate accurately a syntactic structure embedded in a supra-memory span sentence, he must first decode (interpret) the sentence". (Naiman 1974). In encoding the imitations the child must use the rules of his own production system, i.e., the rules that he would use when producing language spontaneously. If so, then the subject's elicited imitations should in many aspects closely approximate the speech which he spontaneously produces (ibid). (For arguments against and

for elicited imitation see Naiman, op cit). It is necessary here to draw attention to the distinction between spontaneous imitation which takes place when the child imitates what is spoken to him naturally, without being requested to do so and elicited imitation when a child is deliberately asked to repeat a selected utterance.

The problem the researcher faces is how to decide the length of a sentence, in what terms, and what measures to use. While Miller (1967) decides that the immediate memory (or short-term memory) span is about seven items without offering a workable identification of an item or its constituents Clark and Clark (1977) decide that "six-word sentences with perhaps only three major constituents should fall within the span". The only practical solution proved successful is that used in the Naiman studies in which the length of a sentence is decided by the number of syllables constituting it. The decision on the number of syllables to be used is to be arrived at after a pilot experiment.

With this technique and the first two, we hope to tap whatever knowledge the learners possess.

3.2 Longitudinal and Cross-sectional Studies.

In the investigation into linguistic development the researcher has also to settle another question in the choice of the data, namely that having to do with the relationship between results obtained from longitudinal (observational, Hatch 1978) studies and those obtained from cross-sectional (pseudo-longitudinal, ibid) studies. Although longitudinal studies are preferrable in investigations of language development, a number of practical difficulties

such as the length of the data collection period, often lead to the use of supposedly viable alternatives such as the cross-sectional. In a cross-sectional study several subjects from the same first language background, but at various stages of exposure to the target language are observed. The data collected at this time is claimed to give the researcher a picture of what he might expect to occur in the period between the shortest and longest times of exposure in his experiment (ibid). There has been a lot of argument regarding the validity of such a claim (see for example Larsen-Freeman 1975). To investigate this aspect and try to arrive at a conclusion this study is going to be a combination of a longitudinal and cross-sectional approach.

3.3 The Pilot Experiment.

3.3.1 Aims.

The Pilot Experiment (PE) was carried out during late March and early April 1979. The aims of carrying out this experiment were:

a. to examine the appropriateness of the determination of the start- and end points of the experiment,

b. to isolate the possible equivalent structures and to find out what contexts might be favourable for the use of the different variants. This is necessary since this investigation is primarily a study of variation.- Notice that "equivalent" is used here in the sense used by Bickerton (1971) and borrowed by Hyltenstam (1978b) which means that two structures are equivalent "if there are both learners who vary between the two and learners who categorically use either the one or the other". (ibid).

c. to examine the reliability of the elicitation techniques and the kinds of data they yield, and

d. to attempt to discover the workability of the experiment in the schools chosen and assess the extra-experimental distractions that may impede the smooth administration of the experiment in order to try to eliminate any effect they might have.

3.3.2 The Subjects.

The subjects for the PE were chosen with the intention that they would be used for the main experiment the following academic year. This, on the outset, ruled out the possibility of including sixth-year secondary school students since they would not be available the following year, having finished their secondary school and most probably joined one of the universities. The following factors were also taken into consideration in choosing the subjects:

a. The pupils' text-books; Since the situation is an exclusively foreign language situation (see 1.1 above), the subjects are what Corder (op cit) calls "captive learners". The only possible input available for the subjects to draw on to is the classroom. And since the teachers stick to the text-books to the letter, it was assumed that to be possible for a structure to be part of the subject's interlanguage, it has first to have been introduced in the classroom. Therefore the text-books were examined to decide what year of the school system to set as the starting point for the cross-sectional study. This, will, of course, be after all the structures to be investigated had been introduced and drilled.

b. Sex: In order to neutralise this factor, it was decided that half of the subjects should be female. This choice will also offer an opportunity to decide whether this factor has any effect on the learning process. Social factors might be at work here since the girls are in a way forced to devote more time to home study for lack of opportunity to do anything else, especially outdoors.

Having the above considerations in mind, it was decided that first-year Intermediate school was the possible starting point for the PE since it was to be administered only about a month away from the end of the academic year. Fifth-year Secondary school had to be the endpoint as explained above (at the time of the PE Time 4 of the experiment was not planned). So, it was decided to choose 60 subjects, 30 male and 30 female, spread over the five years from first-year Intermediate to fifth-year Secondary schools. It was assumed that such a spread would ensure getting subjects at both ends of any possible continuum in the learning of the chosen structures.

3.3.3 The Subjects' Schools.

The subjects chosen come from four schools, two for boys and two for girls. All of the schools are in Baghdad. It is worth pointing out here that all schools and universities in Iraq are state-run and education is absolutely free for all and at all levels. The schools chosen are well-known for their discipline and good staffs. Students in all the schools chosen have similar social background.

In the choice of schools the determining factor was making sure of getting most of the subjects who are going to

proceed from Intermediate to Secondary levels. In other words, we wanted schools where the students of the chosen Intermediate school were mostly expected to proceed to a certain secondary school. Another important factor in the choice was the researcher's familiarity with the school set-up which would help a lot in the form of readiness to co-operate on the part of both teachers and administration, and less cynicism about the results of the research, i.e. it is not going to end in some way as an evaluation of teachers' or administrations' performance. Thus the two girls' schools chosen are those in the neighbourhood where the researcher lives, while one of the boys' schools is that where the researcher has worked for about fifteen years, and is still attached to. The other boys' school is less than ten minutes walk from the first one. In addition to that, a letter from the Director General of Education of the area was sent to each school, asking that every possible help for the success of the research be extended.

3.3.4 The Tasks.

The three tasks, employing the three elicitation techniques discussed above (3.1) were administered in the order they are introduced here. Instructions for all three tasks are given in the subjects' mother tongue (Arabic) with the administrator (the researcher) making sure the subjects understand exactly what they are to do. The subjects were also encouraged to ask the administrator for any help in order to better understand the sentences on each task.

The areas covered in each of the three tasks are, negation, interrogation and the use of the copula. All the vocabulary used was chosen from Book 1 and Book 2 of The New English Course for Iraq, to ensure that none of them was new to the students.

3.3.4.1 The Recognition and Correction (RC) Task.

A separate page of this task was provided for the subjects to state: (Appendix A.1)

Name;
Sex;
Age;
School;
Year;
The number of years of study of English -
The language spoken at home -
Whether the subject had been to any English-speaking country -
If yes, state the country and the period spent there -

The subjects were then asked to read each of the sentences on the following three pages very carefully, and if they judged that it was right to put ✓ in the brackets at the end of the sentence and leave it as it is; while, if they decided that it was wrong, to put X in the brackets and rewrite the sentence into what they think the correct form should be.

The 50 sentences on this task were mostly non-target like. The structures of these non-target like sentences fall into three categories:

a. those assumed, through the researcher's experience, to be structures the subjects are expected to produce at different stages of their development towards the target structure,

b. mother-tongue like structures, and

c. structures that had been produced by learners of English with different language backgrounds.

The point in including such equivalent structures was to see whether our subjects would recognise any of these as part of their own interlanguage. Each of these "borrowed" structures was given more than once to reduce the possibility of chance guessing.

One of the predicted problematic areas is that in the copula part. An Arabic declarative sentence with a copula in the past and a noun NP for subject has a similar structure to an English interrogative sentence.

e.g. was Ali here = Ali was here.

To clarify this, opposite each such sentence, a note in Arabic was provided stating that this sentence is not an interrogative.

3.3.4.2 The Translation (Tr) Task.

On this task (Appendix A.2) the subjects were given 40 sentences in their native language, i.e. Standard Arabic (SA), and asked to translate them into English. The translation was to be written opposite each sentence. Though all the vocabulary used had long been introduced, to be on the safe side, and save time, the subjects were provided with a glossary of all lexical items except those concerning the structures under investigation such as past copulas and negators.

The structures used in this task are naturally limited by whether they exist in SA or not. This, in turn, is going to determine the structures used in the other tasks

for uniformity and comparison. Unfortunately, in the area of the use of the copula, structures such as the progressive or "going to" cannot be elicited by such a task because they do not exist in SA. The same is true for structures like the modals other than "can", "must", and "will" in the areas of negation. Therefore the environments that are going to be investigated in the copula are Pre-Predicative NP, Pre-Predicative Adjective and Pre-Locative Prepositional Phrase. While in negation the investigation will include, do-support, the copula, and the modals "will", "can" and "must".

The problem predicted in this task is that, in written form a negative imperative sentence in Arabic is similar to a declarative sentence with a female pronoun for a subject. Without the correct inflection both sentences look like this:

e.g.

lā taktub

If read in the form above it means

Don't write.

While if read with inflection at the end of the verb

lā taktubu

it means

She does not write.

Although diacritics were used to indicate the correct inflection, we found it better to state what type of sentence it was so the word "imperative" in Arabic was written between brackets at the end of each such sentence.

3.3.4.3 The Elicited Imitation (EI) Task.

Following a further pilot experiment using different subjects for every year of study chosen, the length of the sentences in syllables for each year was arrived at. The sentences were made just longer than the average Short Term Memory (STM) span, thus sometimes risking the possibility of parrot-like repetition by those whose STM span is a little longer, because it was found that if the sentences were made any longer some subjects would fail to imitate at all. The length of sentences in syllables was fixed for every year as follows:

first year : 10, second year : 11, third year : 12,
fourth year : 12, fifth year : 14.

Twenty sentences were constructed with the structures under investigation being in the first half of some of them and in the second half of others, except for interrogative structures which had all to be at the beginning of the sentences. A small number of sentences was used for this task because the whole area was unexplored and we did not wish to risk any possible loss of interest by the subjects. Moreover, one of the main aims of this task in the PE is to get more information for a better administration of the task in the main experiment. These sentences were given to three native speakers of English, to make sure of their lengths.

3.3.5 Administration of the PE.

At the time of the PE, the subjects' mean ages were as follows:

first year : 12.97, second year : 14.04,
third year : 14.61, fourth year : 15.73, and
fifth year : 16.75.

Five subjects of the first group had had 5 years of English; two had had 4 , while the rest had had the usual 3 years. Two of the second years' subjects had had 8 years of English, three had had 6 years, one had had 5 years, while the rest had had the usual 4 years of English. In the third group all the subjects had had the usual 5 years, except one who had had 6. Two of the subjects of the fourth year had had 10 years, one had had 9, while the rest had had the usual 6 years. The last group had all had the usual 7 years, except one who had had 9 years.

The first task to be administered was the RC task. The major problem faced in the administration of this task is that most of the first years' subjects reading ability was very poor. This is apparently so in spite of the fact that they were all at the end of their third year of English because of the great emphasis in the school tests on the oral skills. Therefore, all the sentences had to be read to them one after the other.

As for the translation task which was the next to be administered after a couple of days, there were no problems in the administration. On this task as on the first one, not more than six subjects did the task at one time. They were given all the time they wanted, but the papers proved to be short enough for all of them to do in much less than one hour. This made it possible to have longer tasks during the main experiment.

For the elicited imitation task, the subjects were called one after the other. Each sentence was read by the researcher and the subject had to repeat it immediately. Time and lack of facilities made it impossible to have the sentences pre-recorded because as pointed out above, the length of the sentences was decided after a pilot experiment, and even though we had pre-recorded several sets of sentences, different in length, our expectation of the ability of the subjects to imitate, proved to be far too ambitious.

3.3.6 Findings.

The small number of instances of each structural environment makes it difficult to generalize the results arrived at, but some useful conclusions were drawn, which was taken into consideration later in the administration and the preparing of the main experiment. Some of these conclusions are:

1. that the choice of first year Intermediate as a starting point was an appropriate one, since the learners then are at the very earliest stage of their development. However, since the main experiment would be during the following year, it was hoped that the subjects would have overcome some of the difficulty in reading. So was the choice of the fifth year secondary as the endpoint, since among the subjects of that group, there were some who had mastered the structures under investigation, while there were still some who showed variation.
2. that in order to imitate,subjects did need to decode ~~the~~ the sentence before imitating it and that in encoding the imitations, the subjects used the rules of their own

production system, i.e. imitation was far from being parrot-like.

3. that the vocabulary used and the length in syllables are not the only factors determining imitation, but also the structure of the sentence itself, i.e. whether it is, as traditionally known, simple, compound, or complex, plays a determining part in the process. It was found that though first and second year subjects had been taught different types of sentences, they found sentences with embedded structures especially complex ones, difficult to imitate.
4. that the subjects were capable of handling much more data than that used in the pilot without losing interest and without risk of fatigue.
5. Last, but not least, that the subjects' production was variable.

3.4 Hypotheses.

Following the PE, the task we set for the main experiment is to investigate the following three Groups of hypotheses.

Group One:

1.a. The development of structures is sequential.

1.b. This sequence of development does not totally depend on the conditions under which the learner is exposed to the second language data, i.e. there is no necessary connection between what is taught and what is learned.

1.c. This sequence of development is not specific to a certain language background but can rather be explained in terms of universal language development towards the target norm.

Group Two:

2.a. Learners move towards the target language along a continuum of increasing complexity.

2.b. Learners can be said to be at different points of this continuum according to their proximity to the target.

2.c. Learners move up and down this continuum depending on the degree of formality in their style.

Group Three:

3.a. Development towards the target norm can be explained through a theory of markedness.

3.b. Initial stages of interlanguage are characterised by unmarked categories.

3.c. Development towards the target is achieved from unmarked to marked categories.

CHAPTER FOUR

Design and Administration of the Experiment

4.1 General Design.

Following the Pilot Experiment (cf. 3.3 above) some changes were incorporated in the contents of the tasks (see below) which resulted in lengthening each task and allocating more space to each structural area, especially after the exclusion of the Interrogative from the research.

Due to the great controversy concerning the compatability of the results of longitudinal and cross-sectional studies (cf. 3.1.4 above) it was decided that the experiment would be a combination of both approaches. This is hoped to enable us to decide whether developmental sequences arrived at cross-sectionally are similar to those in individual learners over time.

A section of this chapter will be allocated to an assessment of the subjects' performance on the Elicited Imitation task, because we think this will lend more credibility to the task owing to the controversy regarding the validity of the results of such a technique.

4.2 The Subjects.

The same subjects used for the Pilot Experiment were used for the purpose of this experiment with the exception of three who had moved to other schools before the experiment started, so they were replaced. All the subjects but three, 9, 29 and 38, speak Arabic both at home and at school. The three subjects use Kurdish for

interaction with their families only and use Arabic at school. None of the subjects has been to any English-speaking country for any length of time. This means that as far as contact with and exposure to the target language are concerned, all the subjects of the experiment are in the same position.

The only variation among the subjects of the experiment is in the years of exposure to the target language (TL); i.e. the years of study of English. As was mentioned above (1.1 above), some pupils start English as early in the primary school as the first year of schooling. Such subjects are 12, 40 and 45. The rest varied with the majority having had the usual start at the 5th year of the primary school (see Table 1, Appendix B). At the time the PE was carried out, in other words, about seven months before the main experiment, the mean of the subjects' age was 14.7 years, (see Table 1, Appendix B), the ages range between 12 and 18.

Before the main experiment was started and in order to avoid having subjects who were uninterested in the experiment, each one of the subjects was asked whether he/she was interested in taking part, emphasizing that they would have to repeat the experiment at least three times. All of the subjects expressed their readiness except one, who was then replaced. This brings down the number of the subjects who had taken part in the PE to 56 out of the original 60. In spite of that, we detected some loss of interest at some part of the experiment in one or two of the subjects (e.g. S11, T2) but we do not think that the

loss of interest had anything to do with the experiment, because the same subjects took part enthusiastically the next time the experiment was carried out.

4.3 The Tasks.

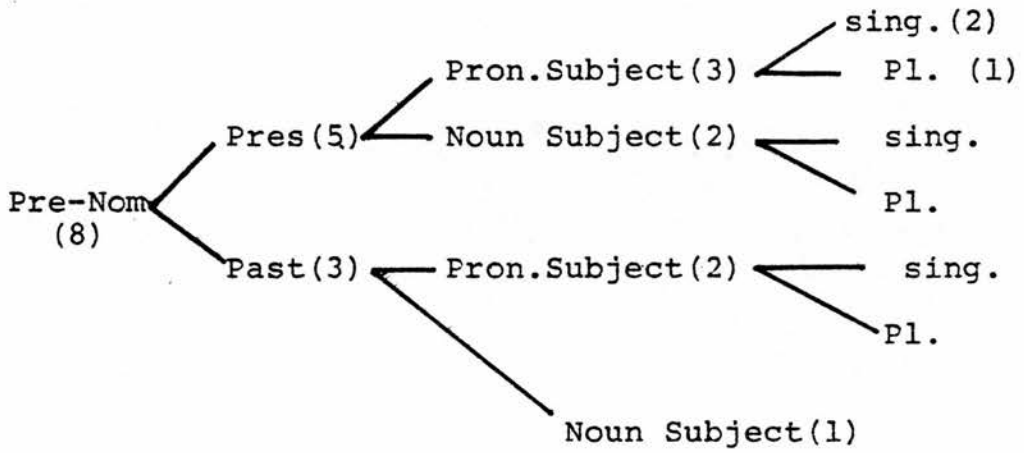
Following the PE (Chapter 3 above) several changes were made on the tasks. It was noted that, within the period of time assigned for each task, the subjects could handle a much larger number of sentences; so each of the tasks was lengthened enough not to cause loss of interest through fatigue or boredom on the part of the subjects.

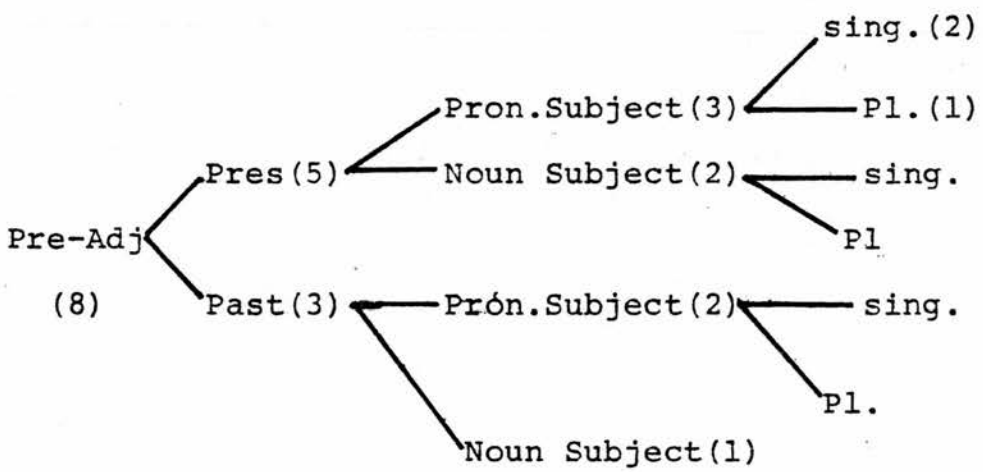
In the contents of the tasks, interrogation was dropped as one of the structural areas under examination. Thus a lot more space was allocated to each structural area on all of the tasks.

4.3.1 The Translation Task (Tr).

This task consists of sixty sentences divided between the two structural areas under investigation, Negation and Copula Realization, and subdivided into the various environments and variants as shown in Figures 4.1 and 4.2 below. The directions, the sentences as well as an Arabic-English glossary were all in Standard Arabic and in the researchers handwriting. The administration of the PE had shown that the subjects had no problem reading hand-written Arabic.

For the different Times of this task, most of the things were held constant, but not to the point that the subjects could recognise that they were doing the same thing. Changes were restricted to vocabulary and order of items (Appendix A, 3, 4, 5, 6).





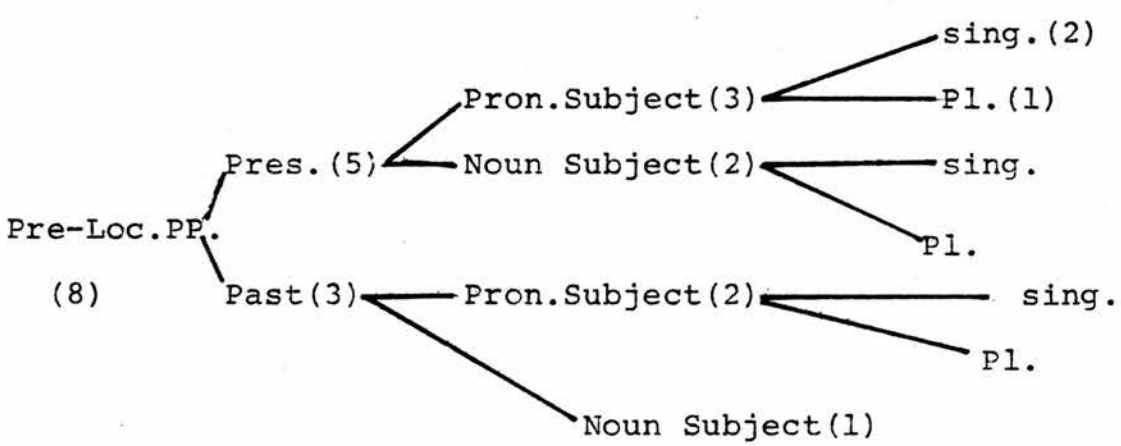


Figure (4.1)

Copula Reduction
Written Tasks

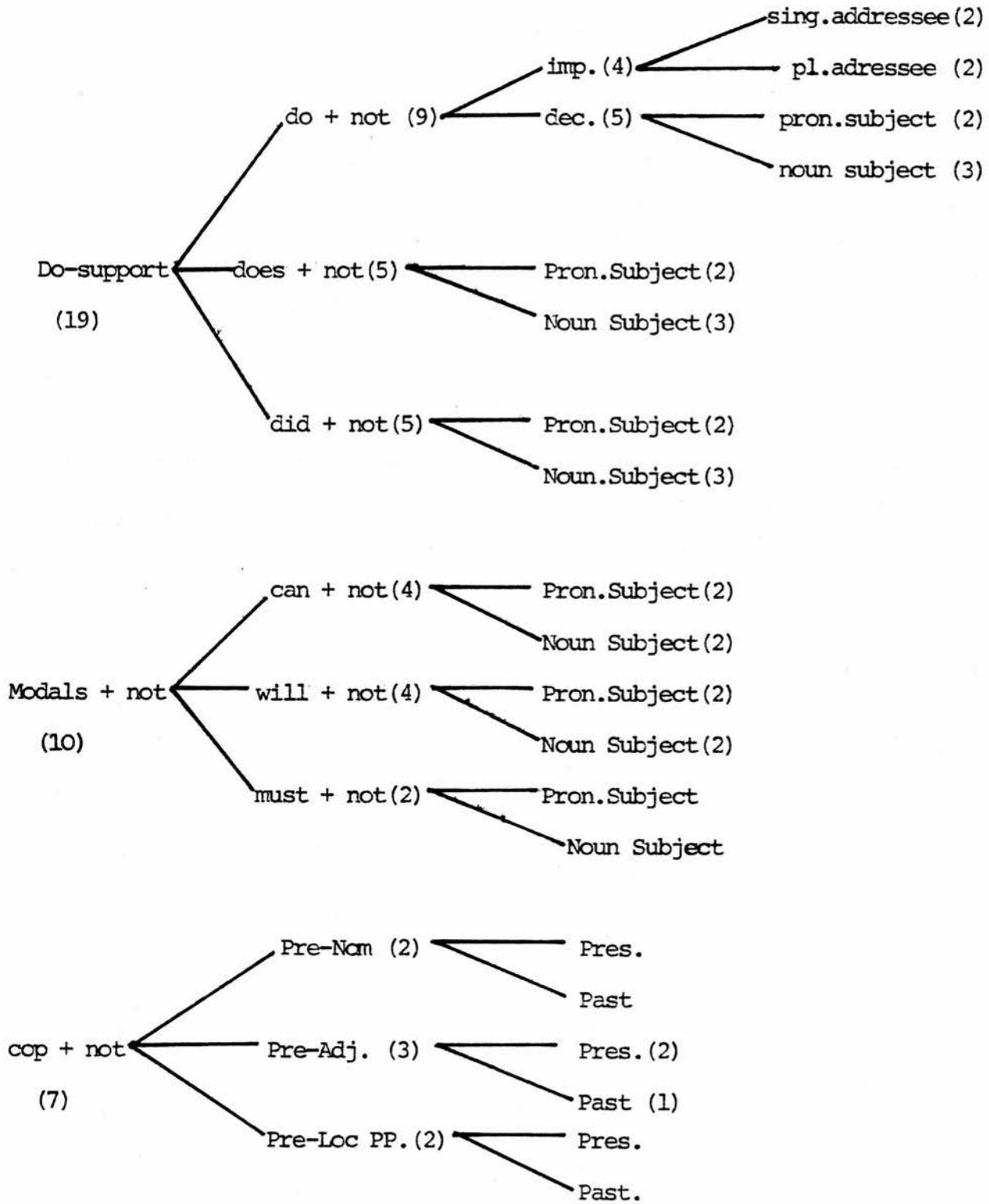


Figure (4.2)

Negation
Written Tasks

One of the serious problems with the Tr test is that not all of the subjects had mastered Arabic to such an extent as to fully understand the different inflections of the verb for tense or subject. In the case of inflection for subject diacritics were used to make understanding easier and help was extended whenever asked for. As for inflection for tense, this was most obvious in some subjects' failure to identify "lan" as a morpheme for negation of the future, therefore at Time Four of the experiment only "sawfa la" was used, since it was found that the subjects could identify it more easily than "lan".

4.3.2 The Recognition and Correction Task (RC)

Changes in this task were similar to those of the Tr Task, restricted to vocabulary and order of items. The paper on this task consisted of sixty non-target-like sentences and a couple or more target-like whose structures were not any of those under investigation. Enough space was left after each sentence for the subject to write in what he thought the correct sentence should be. It was also pointed out to the subjects that the negator "no" at the beginning of some of the sentences was not used referentially in the task. Negative imperative sentences were pointed out against each of them (Appendix A, 7, 8, 9, 10). Though the directions were given in English at the top of the paper, the subjects were also told what they were to do in Arabic.

4.3.3 The Elicited Imitation Task (EI).

For this task, fifty of what is traditionally called "compound" and "complex" sentences were used. Three

different papers were used, depending on the length of the sentences on the task. Paper No. 1 was for Second Year pupils and consisted of ten-syllable-long-sentences. Rather than using compound or complex sentences, pairs of simple sentences were used because it had been found following the PE that some compound and all complex sentences were too difficult for the subjects to process (Appendix A.11). Paper No. 2 consisted of twelve-syllable-long-sentences and was for 3rd and 4th year pupils (Appendix A.12). And lastly, Paper No. 3 which was for 5th and 6th year pupils consisted of fourteen-syllable-long-sentences. (Appendix A.13).

The first thirteen sentences on each paper were structurally different from those under investigation, i.e., none of the sentences contained a negative structure or a copula. This was done to help the subjects to relax and become acquainted with the intonation and phonetics of the examiner. The remaining thirty seven sentences (74 propositions) were divided between the two structural areas, 25 for the copula and 49 for negation. These were sub-divided into the various environments and variants as in Figures 4.3 and 4.4.

Each of the papers were pre-recorded on a cassette in the hope that if facilities were available, it would be used to avoid as much as possible external noise affecting the subjects' hearing of the sentences.

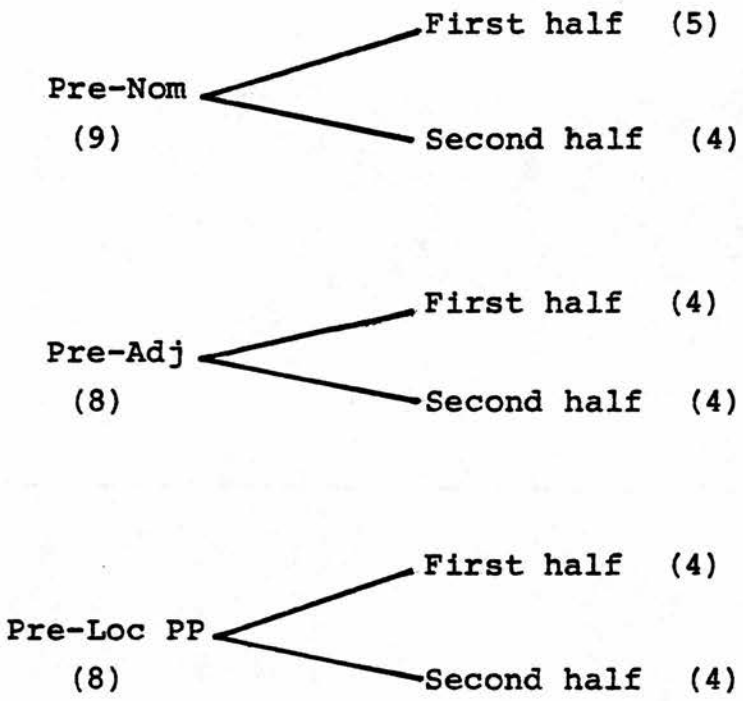


Figure (4.3)

Copula Reduction

Elicited Imitation Task

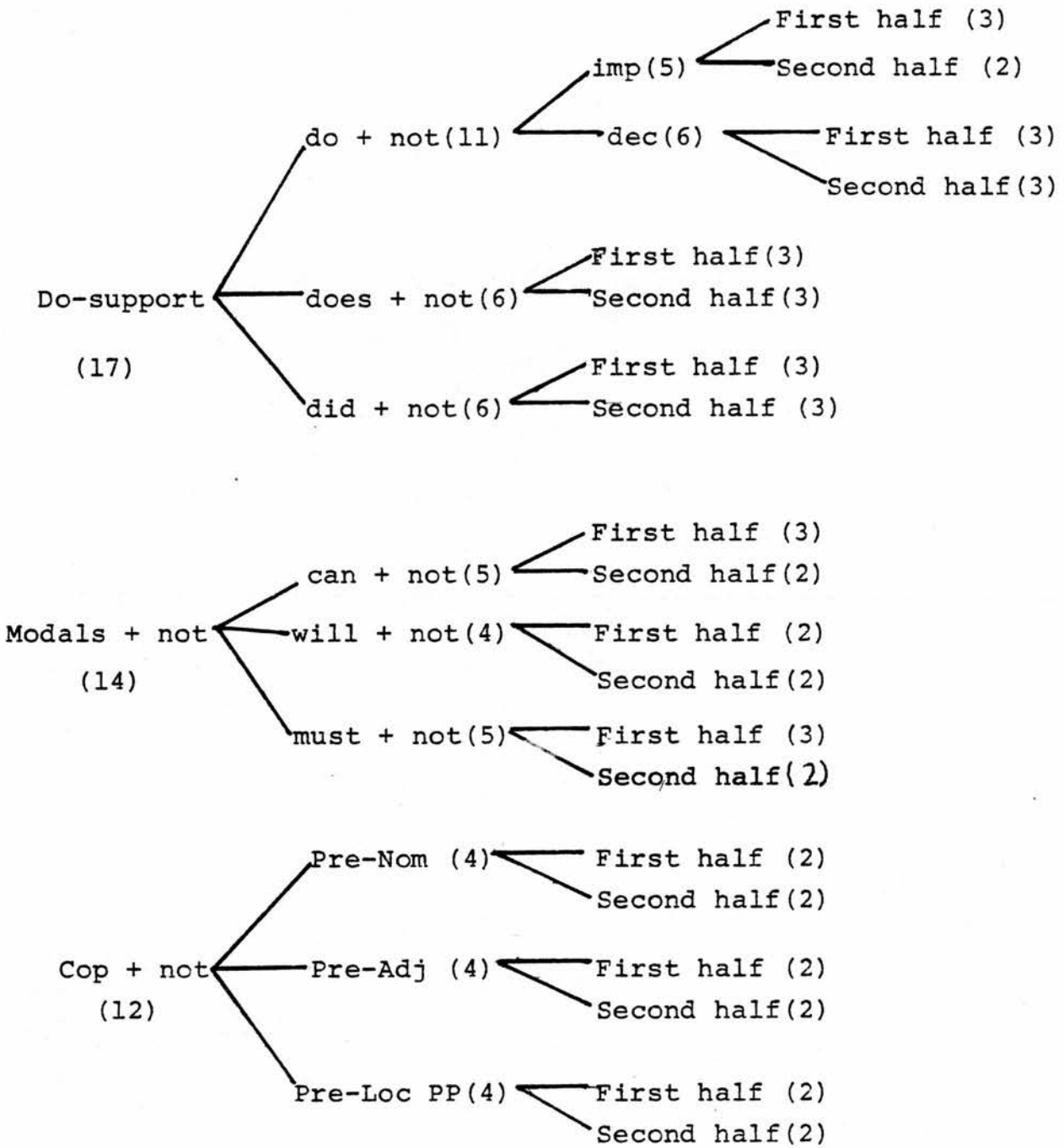


Figure (4.4)

Negation

Elicited Imitation Task

4.4 The Administration of the Experiment.

All through the experiment the Tasks were administered in this order, the Recognition and Correction Task (RC), the Translation Task (Tr) and the Elicited Imitation Task (EI). The subjects showed more interest in and seemed to enjoy more the Tr task than any of the others. They tended to be more casual on the RC task than on the Tr. The one they liked the least was the EI task. Time One of the experiment was administered late in October and early in November 1979, while Time Two took place late in November and early in December of the same year. A month later, Time Three of the experiment was carried out. Time Four was administered 12 months later, i.e., late in December 1980 and early in January 1981. It was hoped that the subjects at this Time would have had a normal year in their study of English, but, unfortunately, due to the war with Iran, the subjects had had to have an extended vacation of more than six months. So at Time Four, the subjects had just started the new academic year and some of them had not had a class of English since early May. It being a foreign language situation, loss of contact with the target language for such a comparatively long time is expected to have some effect on their development.

For both written Tasks, the subjects were made to understand that they could have as much time as they needed. Special attention was paid to the seatings of the subjects and spaces among them to reduce chances of intentional or unintentional influences.

The EI task proved to be a problem to administer due to various external factors. In the absence of language laboratories, there was no way of carrying out this Task in groups as was the case with written Tasks. This meant that each subject had to do this Task separately in the absence of the others which posed the problem of accommodating the other five awaiting their turn. Calling one subject after the other from the classroom was ruled out as impractical and, understandably, unacceptable to the teacher of the class. This made it possible to administer this Task three times only, with the second time of administration co-occurring with Time Three of the other two Tasks, and so though it is actually Time Two of the Task, it is going to be called Time Three. In other words, there will be no Time Two of the EI Task.

Another problem faced in the administration of the EI Task is the lack of facilities. This meant that the Task had to be administered without the use of the pre-recorded cassette supplying the models both at Times One and Three. The researcher supplied the models and allowed the subjects enough time to give their response. This problem was overcome at Time Four when another cassette recorder was used and the subjects listened to the models read to them through headphones. At all Times of the experiment,the recording machine,and at Time Four, the play machine, were AIWA 1000 Stereo Radio-Cassette-Recorder sets.

All three Tasks were administered by the researcher at all Times of the experiment.

4.5 Assessment of Performance on the EI Task.

In the administration of this task it was clear that in order to imitate a sentence correctly, the subject had to comprehend its meaning. Evidence of this phenomenon is clear in cases in which parts of the sentences were rephrased, preserving the meaning.

(The symbols used in this section are

M = the model sentence uttered by the researcher,

R = the subject's response,

S = the subject,

T = the Time of the experiment).

1. M: Because he does not study his friend must not teach him.

   R: Because he don't study his friend don't learn him. (S16, T1)

2. M: The men cannot go because they do not have money.

   R: The mens do not go because they have not money (S22,T1)

   R: That man cannot go because he has no time. (S33,T4)

   R: The pupil cannot go because he haven't a lot of time (S40,T1)

3. M: He does not sell vegetables because he is a butcher

   R: He doesn't sell meat because he's not a butcher.(S38,T3)

(More examples of rephrasing are in Appendix A.14a)

This sort of rephrasing seems to be clear evidence that the subject had retrieved the underlying meaning of the sentence and was encoding that meaning in a new form in imitation.

Another evidence of this phenomenon is that a subject sometimes inverts the propositions of the two sentences or of the conjoined sentence.

e.g.

1. M: The boy is not at school and he is not at home.

   R: The boys are not in the home and not in the school. (S16,T1)

2. M: They will not do it. They do not know it.

   R: They did not know it. They will not do it (S6, T3)

(For more examples, see Appendix A.14c)

Note that the subject did not always give a literal repetition in these imitations, but that he/she had clearly retained the two propositions. Inversion of the propositions also reveals something of the subjects' strategy in sentence imitation. The data suggests that the subjects had retained the general syntactic form of the model sentence and what he/she was concerned with in output was to produce something in this general syntactic form. The exact content words and details of structure are, however, in some cases lost sometimes resulting in the imposition of parallel construction.

e.g.

1. M: Because he does not study his sister must not help him.

   R: Because he does not study his sister does not help him. (S52,T1)

2. M: Layla did not help Zaki. He will not help her

   R: Layla did not help Zaki. He did not help her (S13,T3)

   R: Layla will not help Zaki. He won't help her (S's 16,22,23, T1)

3. M: They will not come tomorrow because they do not know.

   R: They will not come tomorrow because they will not know. (S19, T1)

   R: They don't come tomorrow because they don't know. (S37, T1)

   R: Some people did not come tomorrow because he didn't know. (S's 40, 44, T4)

(For more examples see Appendix A.14b)

Such evidence seems to indicate that if the two conjoined sentences differed in structure, the subjects found it difficult to retain both structures, which in turn indicates that each syntactic structure takes up a certain amount in short-term memory. Note that it is not predictable which of the two structures the subject will start off with, but that he/she retained the notion that there should be two propositions even if he/she repeated the same proposition twice.

e.g.

1. M: He is in the factory now and he is a worker.
   R: He is in the factory now and he is in the factory now. (S54, T1)
2. M: Zaki must not work hard because he is not well.
   R: Zaki is not work hard because he is not work. (S3,T4)

There is even some evidence that some subjects in their attempts to fill in both of the slots of the two propositions, having lost the details of the structure impose the structure of a previous sentence.

e.g.

M: Because I am not a teacher I must not teach.
R: Because I not a teacher I must not a teach. (S2, T4)
M: He is not rich although he is an engineer.
R: He must not teach although he must not engineer. (S2,T4)
R: He not rich although he must not engineer. (S4, T4)

(More examples are in Appendix A.14d)

The phenomena of insertion and omission as in the two responses just above are evidence that the subjects do not imitate parrot-like (3.1.3 above) as some people people argue. These phenomena are very frequent in the data.

e.g.

1. M: He does not cross because his house is on this side.

   R: He does not cross because his house in this side. (S23, T1)

2. M: My uncle's house is not new but it is on the river.

   R: My uncle house is not new but it's on the river. (S19, T1)

3. M: She cannot help you because she is not a nurse.

   R: She cannot help you because she not nurse. (S1, T4)

4. M: My father is in Basra now and he is a lawyer.

   R: My father he is in Basra now and he is a lawyer. (S32, T1)

5. M: Because this story is bad the pupils must read it.

   R: Because this story is bad therefore the pupil must not read it.

(For more examples of insertion and omission, see Appendix A.14 e and f consecutively)

However, there are instances where some subjects merely repeated without understanding and produced nonsense words. A possible explanation for that is that they might be behaving in the only way they knew, copying what they had been doing in class, i.e. bad teaching. All through the experiment and whenever there was an English class nearby, we did not hear any of the teachers spot-checking individual pupils for correct imitation.

4.6 Criteria for Assessment.

In the area of the copula, since we are interested merely in finding out whether the subject actually uses a form of the copula where it is obligatory or not, it was decided to have only two alternatives; present which means that as long as any form of the copula is used at the right

place the sentence is going to be considered as "correct", absent where no copula is used. An exception is made for EI where the subject has to supply the target-like copula as used in the model sentence. The same exception is made in Negation. This was considered as fair, since the subject had had the advantage of the target-like structure introduced to him immediately before he produced it.

In the area of negation a structure is considered "correct" as long as the correct auxiliary is used with the negative morpheme. The form of the verb after the negative morpheme was not taken into consideration, i.e. it was not considered necessary that the infinitive form of the verb was used.

For the purpose of general assessment of the subjects' performance, each subject was awarded (1) for every "correct" response and (0) otherwise. This means that on each of the written Tasks the meximum score is "60" and since the maximum score on the EI is "74", the results of this task were adjusted accordingly. For accuracy/acquisition orders and implicational scaling the percentages of instances of "correct" use of the structure in each environment were calculated.

If a variant was overgeneralized, it was considered "correct" in the instances where it is supposed to be used and "wrong" elsewhere.

CHAPTER FIVE

The Results of the Experiment

5.1 General Performance

Following the criteria of assessment outlined above (4.6) the subjects' overall production was scored on each of the Tasks. The results are in Table 2 Appendix B. The means of the scores are displayed graphically in Figure 5.1. It is apparent that the subjects showed continuous improvement between Times Two and Three in all Tasks. While this improvement seems to have continued in the Tr Task it has dropped considerably in the other two Tasks.

5.1.1 Performance by Tasks

In order to determine the extent of the relationship the Tasks have with one another a Pearson Correlation coefficient was computed - Table 5.1 displays the results. The inter-Task correlation indicate subjects' performance across Tasks as significantly correlated and the Tasks could be said to have measured the language skills in a consistent manner. It is interesting to note that although the results are all very highly significant ($p<.01$) it can be said that they reveal a closer relationship between the written Tasks on one hand and between any of them and the EI Task on the other.

e.g.

Tr_1 with RC_1
$r(60) = .9635$
Tr_1 with EI_1
$r(59) = .8149$
RC_1 with EI_1
$r(59) = .7891$

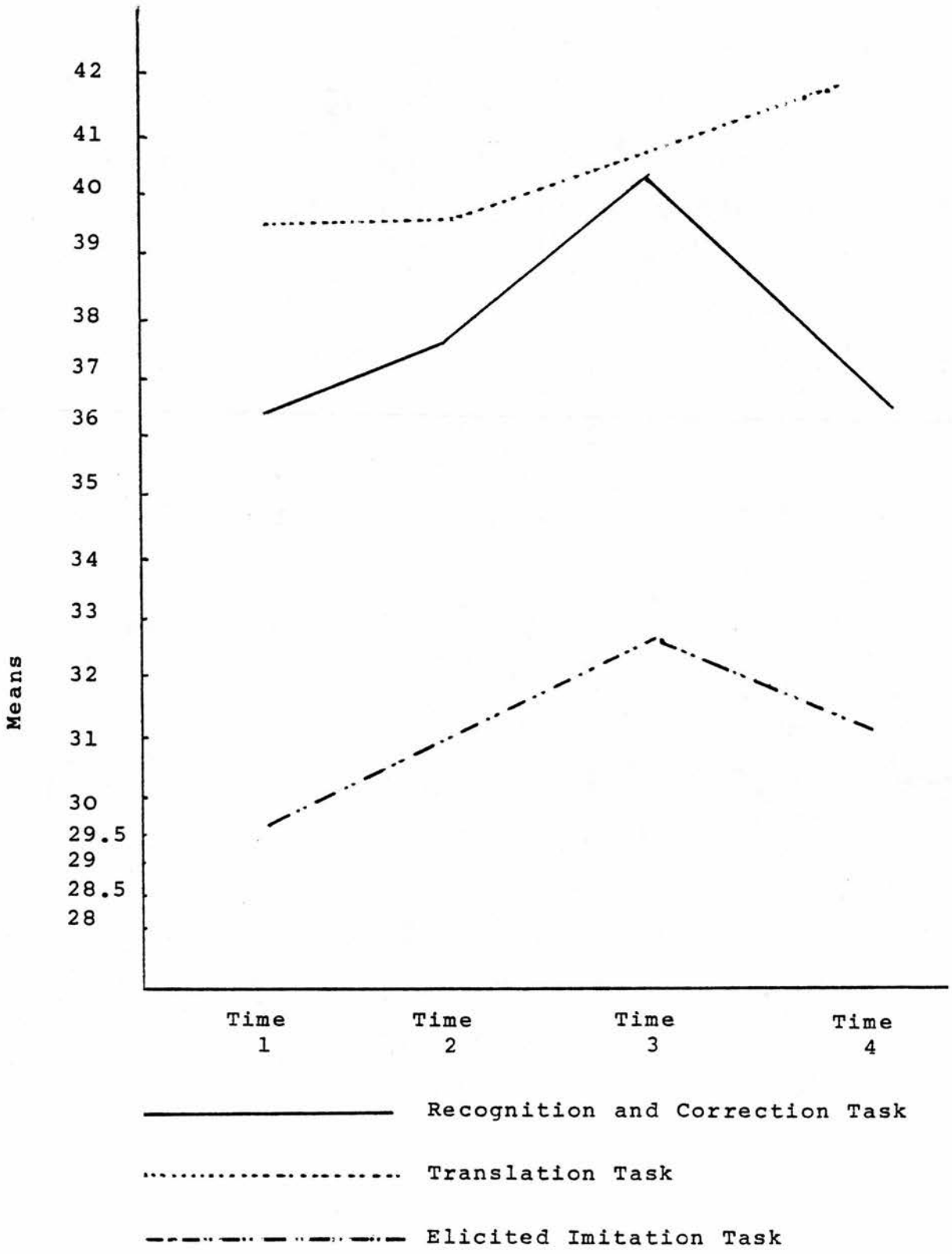


Figure (5.1)

Means of subjects' scores on all Tasks

TABLE 5.1 PEARSON CORRELATION COEFFICIENTS

	TR1	TR2	TR3	TR4	RC1	RC2	RC3	RC4	EI1	EI3	EI4
TR1	1.0000	0.9610	0.9447	0.9034	0.9491	0.9635	0.9457	0.9456	0.8149	0.8096	0.8855
	(60)	(57)	(56)	(44)	(60)	(58)	(57)	(44)	(59)	(42)	(44)
	P=*****	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000
TR2	0.9610	1.0000	0.9746	0.9362	0.9328	0.9531	0.9392	0.9448	0.8169	0.8266	0.8584
	(57)	(57)	(53)	(43)	(57)	(55)	(54)	(43)	(56)	(41)	(43)
	P=0.000	P=*****	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000
TR3	0.9447	0.9746	1.0000	0.9541	0.9251	0.9212	0.9368	0.9288	0.8144	0.7937	0.8079
	(56)	(53)	(56)	(40)	(56)	(54)	(55)	(40)	(55)	(39)	(40)
	P=0.000	P=0.000	P=*****	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000
TR4	0.9034	0.9362	0.9541	1.0000	0.8592	0.8576	0.8464	0.8920	0.8509	0.8604	0.8074
	(44)	(43)	(40)	(44)	(44)	(42)	(41)	(44)	(43)	(32)	(44)
	P=0.000	P=0.000	P=0.000	P=*****	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000
RC1	0.9491	0.9328	0.9251	0.8592	1.0000	0.9631	0.9374	0.9498	0.7891	0.7683	0.8325
	(60)	(57)	(56)	(44)	(60)	(58)	(57)	(44)	(59)	(42)	(44)
	P=0.000	P=0.000	P=0.000	P=0.000	P=*****	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000
RC2	0.9635	0.9531	0.9212	0.8576	0.9631	1.0000	0.9714	0.9664	0.7754	0.7527	0.8413
	(58)	(55)	(54)	(42)	(58)	(58)	(55)	(42)	(57)	(42)	(42)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=*****	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000
RC3	0.9457	0.9392	0.9368	0.8464	0.9374	0.9714	1.0000	0.9346	0.7662	0.7474	0.8074
	(57)	(54)	(55)	(41)	(57)	(55)	(57)	(41)	(56)	(40)	(41)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=*****	P=0.000	P=0.000	P=0.000	P=0.000
RC4	0.9456	0.9448	0.9288	0.8920	0.9498	0.9664	0.9346	1.0000	0.8385	0.8607	0.8275
	(44)	(43)	(40)	(44)	(44)	(42)	(41)	(44)	(43)	(32)	(44)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=*****	P=0.000	P=0.000	P=0.000
EI1	0.8149	0.8169	0.8144	0.8509	0.7891	0.7754	0.7662	0.8385	1.0000	0.9046	0.9001
	(59)	(56)	(55)	(43)	(59)	(57)	(56)	(43)	(59)	(42)	(43)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=*****	P=0.000	P=0.000
EI3	0.8096	0.8096	0.7937	0.8604	0.7683	0.7527	0.7474	0.8607	0.9046	1.0000	0.9244
	(42)	(42)	(39)	(32)	(42)	(42)	(40)	(32)	(42)	(42)	(32)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=*****	P=0.000
EI4	0.8855	0.8584	0.8079	0.8074	0.8325	0.8413	0.8074	0.8275	0.9001	0.9244	1.0000

This also indicates that slightly different skills were involved in the performance of the two types of elicitation techniques, the written and the oral.

The inter-Task relationship was further investigated using a t-test between the Tasks at Time One and at Time Four. The results are displayed in Table 5.2. The results though are all very highly significant (2-TAIL-PROB.<.01) they also revealed greater differences between Tr Task and EI Task both at Times One and Four (T-Value = 5.52, 7.59 consecutively) than between RC Task and EI Task (T-Value = 3.56, 3.93). Tasks will be investigated again in discussing the structural areas.

5.1.2 Performance by Times

A t-test on Time was computed using the data at Times One, Three, and Four of the written Tasks and Times One and Four of the EI Task. The results are presented in Table 5.3.

It is apparent from the lack of significance between Tr_1 and Tr_3 (period between the two Times was approximately 2 months) and the high significance between Tr_1 and Tr_4 (a period of about 14 months between the two Times) and Tr_3 and Tr_4 (a period of 12 months) that though the development displayed by Figure 5.1 was continuous it was not fast enough to be significantly different after two months but a year later the difference became significant. Contrary to that development on the RC Task was highly significant between RC_1 and RC_3 but was not so between RC_3 and RC_4. As for the EI Task the only information we have is that of the development between Time One and Time Four which is also highly significant. From the results in Table 5.3 one can conclude that Time plays a signi-

Table 5.2 T-Test on Tasks

Variable	Mean	Difference (Mean)	T-Value	df	2-Tail-Prob.
Tr_1 RC_1	39.5000 36.5167	2.9833	4.41	59	0.000
Tr_1 EI_1	39.5000 30.8333	8.6667	5.52	58	0.000
RC_1 EI_1	36.5167 30.8333	5.6833	3.56	58	0.001
Tr_4 RC_4	41.8182 36.4545	5.3636	5.25	43	0.000
Tr_4 EI_4	41.8182 31.3409	10.4773	7.59	43	0.000
RC_4 EI_4	36.4545 31.3409	5.1156	3.93	43	0.000

Table 5.3 T-Test on Time

Variable	Mean	Difference (Mean)	T-Value	df	2-Tail-Prob.
Tr_1 Tr_3	39.5714 40.8571	-1.2857	-1.81	55	0.075
Tr_1 Tr_4	35.1591 41.8182	-6.6591	-6.32	43	0.000
Tr_3 Tr_4	36.9500 41.7500	-4.8000	-6.83	39	0.000
RC_1 RC_3	37.0000 40.1579	-3.1579	-4.11	56	0.000
RC_1 RC_4	31.4091 36.4545	-5.0455	-6.70	43	0.000
RC_3 RC_4	35.2927 36.7561	-1.4634	-1.61	40	0.116
EI_1 EI_4	27.6279 31.3023	-3.6744	-3.64	43	0.001

ficant part in the development of the overall knowledge of the subjects of the structures under investigation but the strength of this influence varies from Task to Task. The drop in performance between Time Three and Time Four might be attributed, at least partly, to the extended summer vacation which had kept the subjects away from school, the sole source of input and their only contact with the target language, for too long a time.

5.2 Performance in the Structural Areas

5.2.1 Copula Realization

5.2.1.1 Determination of Variation-Preliminary Analysis

The first step in the preliminary analysis of the data was to ascertain whether variation actually existed among the three Environments where the use of the copula is obligatory, namely Pre-Predicate Nominal (Pre-Nom) Pre-Predicate Adjective (Pre-Adj) Pre-Locative Prepositional Phrase (Pre-Loc). The performance of all subjects on each Task with respect to whether they used a form of the copula or not were calculated for each of the eight occurrences of the copula in each Environment*. The frequency distribution of the subjects' scores at 10% intervals is displayed in Table 5.4A-K. A graphic display of the means of the subjects' scores on each Environment is presented in Figure 5.2A-D.

From the tables showing the frequency distribution and the graphic representation of the means of scores the following facts can be deduced:

1. that the pattern is similar in all three Tasks at the four Times of the experiment.

* Scores in Tables 3-5 Appendix B

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

A. Recognition and Correction Time 1

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	2	2	5	5%
10-19%	2	1	3	3%
20-29%	2	2	5	5%
30-39%	1	1	3	3%
40-49%	0	0	0	-
50-59%	2	2	7	6%
60-69%	4	4	6	8%
70-79%	6	5	3	8%
80-89%	5	9	8	12%
90-100%	36	34	20	50%
	60	60	60	

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

B. Recognition and Correction Time 2

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0.9%	1	2	5	5%
10-19%	4	3	2	5%
20-29%	0	3	3	3%
30-39%	1	0	4	3%
40-49%	0	0	0	-
50-59%	3	2	3	5%
60-69%	1	2	1	2%
70-79%	4	3	6	7%
80-89%	8	11	2	12%
90-100%	36	32	31	58%
	50	58	58	

at the 80% level: RC1 = 57%

RC2 = 69%

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

C. Recognition and Correction Time 3

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	2	2	3	4%
10-19%	1	1	3	3%
20-29%	1	2	2	3%
30-39%	1	1	0	1%
40-49%	1	2	0	2%
50-59%	2	2	5	5%
60-69%	1	0	3	2%
70-79%	6	2	8	9%
80-89%	1	8	6	9%
90-100%	42	38	28	63%
	57	57	57	

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

D. Recognition and Correction Time 4

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	1	1	2	3%
10-19%	0	1	2	2%
20-29%	1	0	2	2%
30-39%	0	0	2	2%
40-49%	0	0	0	-
50-59%	2	1	7	8%
60-69%	3	2	3	6%
70-79%	3	4	4	8%
80-89%	4	4	7	11%
90-100%	30	31	14	57%
	44	44	44	

at the 80% level: RC3 = 72%

RC4 = 68%

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

E. Translation Time 1

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	3	2	2	4%
10-19%	0	1	0	0.6%
20-29%	0	0	3	2%
30-39%	2	1	8	6%
40-49%	0	0	0	-
50-59%	3	2	1	3%
60-69%	4	5	3	7%
70-79%	1	3	4	4%
80-89%	1	5	5	6%
90-100%	46	41	34	67%
	60	60	60	

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

F. Translation Time 2

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0.9%	3	3	2	5%
10-19%	0	0	1	0.6%
20-29%	1	1	3	3%
30-39%	0	1	2	2%
40-49%	0	0	0	-
50-59%	3	1	3	4%
60-69%	1	5	0	4%
70-79%	4	2	8	8%
80-89%	1	3	8	7%
90-100%	44	41	30	67%
	57	57	57	

at the 80% level: Tr_1 = 73%

Tr_2 = 74%

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

G. Translation Time 3

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	1	1	1	2%
10-19%	2	2	2	4%
20-29%	0	0	0	-
30-39%	0	0	2	1%
40-49%	0	0	0	-
50-59%	1	1	1	2%
60-69%	1	1	3	3%
70-79%	2	4	6	7%
80-89%	3	2	7	7%
90-100%	46	45	34	74%
	56	56	56	

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

H. Translation Time 4

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	2	2	2	5%
10-19%	0	0	1	0.7%
20-29%	0	0	0	-
30-39%	0	0	1	0.7%
40-49%	0	0	0	-
50-59%	0	1	4	4%
60-69%	1	1	6	6%
70-79%	1	3	1	4%
80-89%	5	6	7	14%
90-100%	35	31	22	67%
	44	44	44	

at the 80% level: Tr_3 = 82%

Tr_4 = 80%

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

I. Elicited Imitation Time 1

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0-9%	0	3	3	3%
10-19%	2	3	4	5%
20-29%	2	0	2	2%
30-39%	0	6	2	5%
40-49%	0	0	0	-
50-59%	2	5	10	10%
60-69%	7	7	12	15%
70-79%	3	7	14	14%
80-89%	26	16	9	29%
90-100%	17	12	3	18%
	59	59	59	

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

J. Elicited Imitation Time 3

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0.9%	0	1	1	2%
10-19%	0	2	2	3%
20-29%	0	3	4	6%
30-39%	0	1	2	2%
40-49%	2	0	2	3%
50-59%	3	4	8	12%
60-69%	2	3	3	6%
70-79%	6	7	6	15%
80-89%	12	10	11	26%
90-100%	17	11	3	25%
	42	42	42	

at the 80% level: EI_1 = 47%

EI_3 = 51%

Table 5.4 Frequency Distribution of Scores by Environments at 10% Intervals

K. Elicited Imitation Time 4

	Pre-Nom	Pre-Adj	Pre-Loc	P.C. Total
0.9%	0	2	2	3%
10-19%	1	2	2	4%
20-29%	0	1	1	2%
30-39%	0	3	5	6%
40-49%	0	0	0	-
50-59%	2	3	4	7%
60-69%	3	6	9	14%
70-79%	4	9	7	15%
80-89%	10	11	5	20%
90-100%	24	7	7	29%
	44	44	44	

at the 80% level: EI_4 = 48%

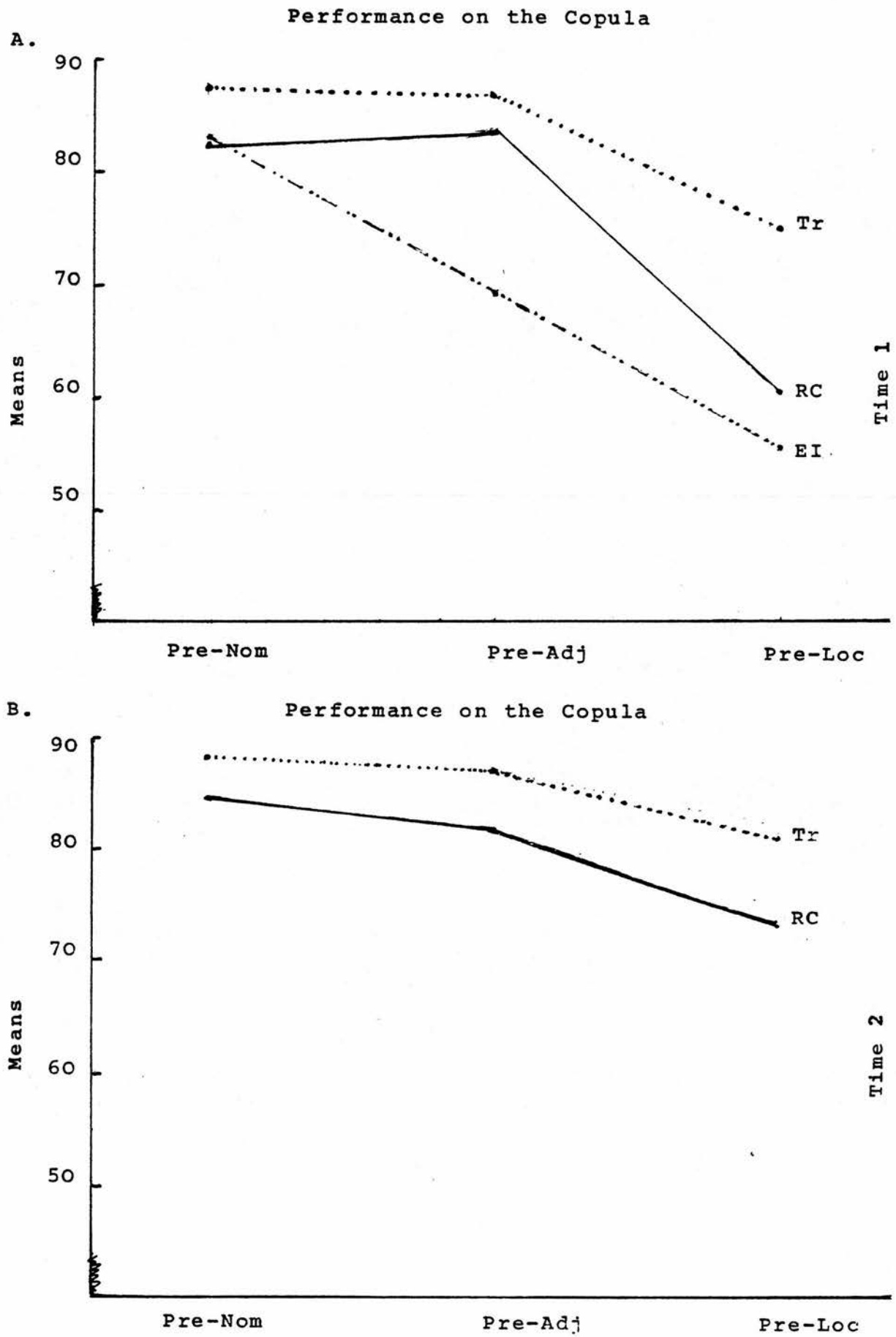
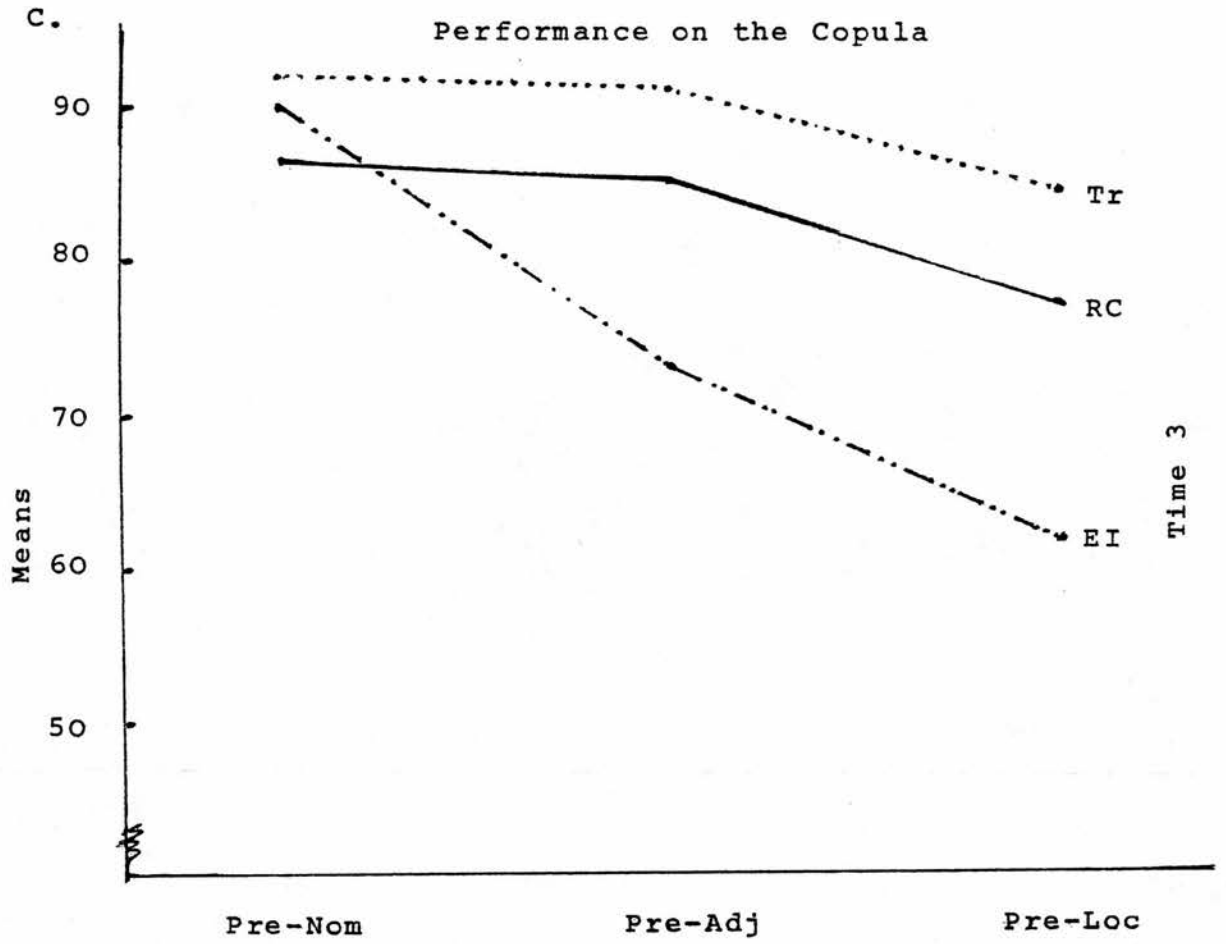

A.
Performance on the Copula
90
80
70
60
50
Means
Tr
RC
EI
Time 1
Pre-Nom
Pre-Adj
Pre-Loc
B.
Performance on the Copula
90
80
70
60
50
Means
Tr
RC
Time 2
Pre-Nom
Pre-Adj
Pre-Loc

Figure (5.2)


C.
Performance on the Copula
90
80
70
60
50
Means
Tr
RC
EI
Time 3
Pre-Nom
Pre-Adj
Pre-Loc

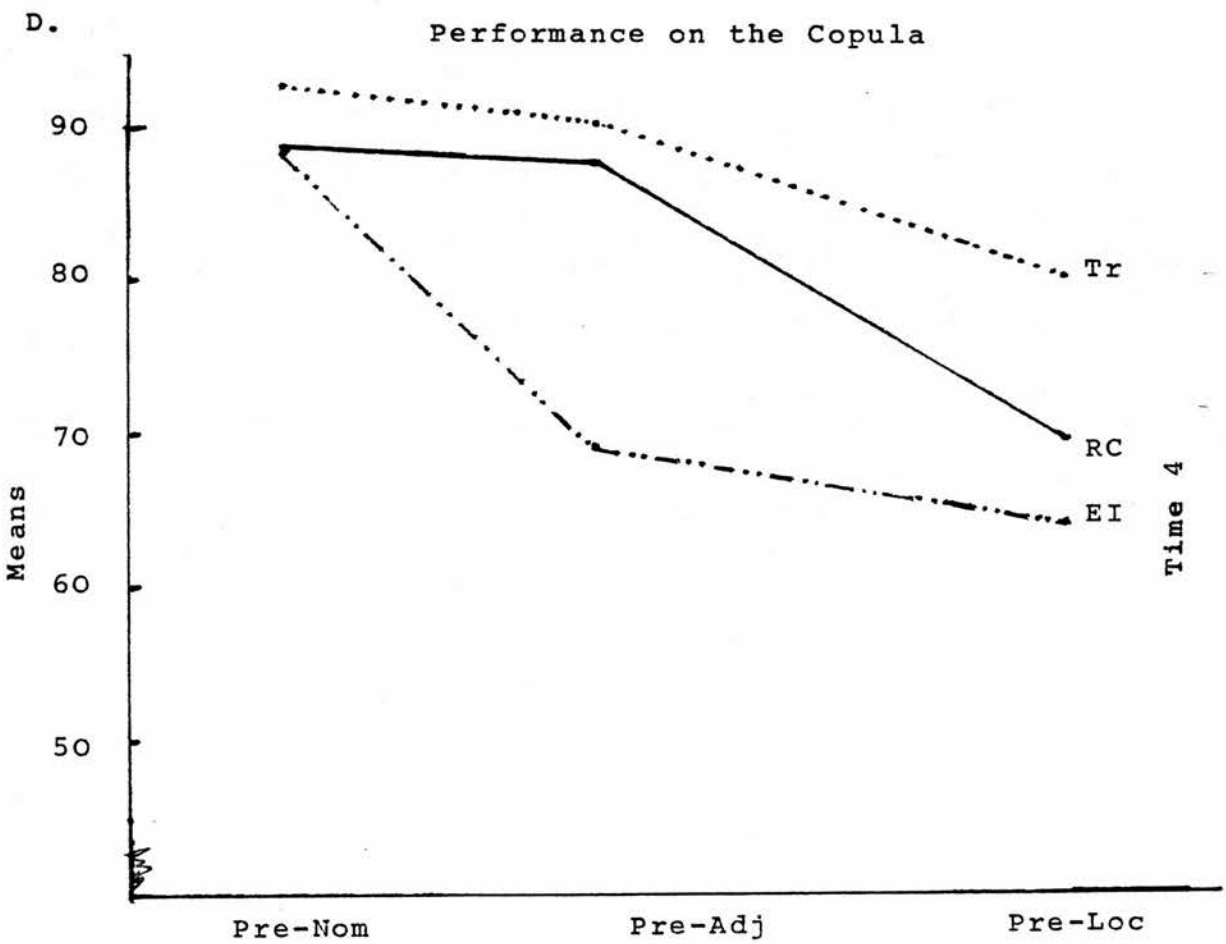

D.
Performance on the Copula
90
80
70
60
50
Means
Tr
RC
EI
Time 4
Pre-Nom
Pre-Adj
Pre-Loc

Figure (5.2)

2. that there is evidence that, at least cross-sectionally, the following acquisition/accuracy order holds all through, Pre-Nom, Pre-Adj, Pre-Loc, though the difference between the first two Environments is not as high as it is between the last two.
3. that there is consistency in the performance at all Times of the experiment, even in the case of the Pre-Nom in the EI Task which is higher than it is in the RC Task at Times One and Two and almost equal to it at Time Four.
4. that the subjects' performance in this structural area shows considerable variability according to Task.
5. that the differences between Environments are greater in the EI Tasks than they are in any of the other two Tasks.

In order to find out whether any development had taken place in the subjects' knowledge of this structural area a frequency distribution of the subjects' scores by Time at 10% intervals is provided in Table 5.5A-C. A graphic display of the subjects' performance in the copula at the level of performance of 80% and above is given in Figure 5.3.

The Table and the Figure show that the subjects' knowledge of the copula has developed over Time especially between Times One and Three while there has been some general backsliding at Time Four. In the Tr Task though it appears from the graph that it has held steady, the percentage of subjects at the 80% level and above is equal to Times One and Two and less than Time Three. It seems from Figure 5.2 that whatever backsliding has taken place has largely been in the Pre-Loc except in the EI Task where there is considerable backsliding in the Pre-Adj.

Table 5.5 Frequency Distribution of Scores by Times at 10% Intervals

A. Translation Task

Times / Performance Level	1 n = 60	2 n = 57	3 n = 56	4 n = 44
0-9%	4%	5%	2%	5%
10-19%	0.6%	0.6%	4%	0.7%
20-29%	2%	3%	-	-
30-39%	6%	2%	1%	0.7%
40-49%	-	-	-	-
50-59%	3%	4%	2%	4%
60-69%	7%	4%	3%	6%
70-79%	4%	8%	7%	4%
80-89%	6%	7%	7%	14%
90-100%	67%	67%	74%	67%

Table 5.5 Frequency Distribution of Scores by Times at 10% Intervals

B. Recognition and Correction Task

Times / Performance Level	1 n = 60	2 n = 58	3 n = 57	4 n = 44
0-9%	5%	5%	4%	3%
10-19%	3%	5%	3%	2%
20-29%	5%	3%	3%	2%
30-39%	3%	3%	1%	2%
40-49%	-	-	2%	-
50-59%	6%	5%	5%	8%
60-69%	8%	2%	2%	6%
70-79%	8%	7%	9%	8%
80-89%	12%	12%	9%	11%
90-100%	50%	58%	63%	57%

Table 5.5 Frequency Distribution of Scores by Times at 10% Intervals

C. Elicited Imitation Task

Times	1	3	4
Performance Level	n = 59	n = 42	n = 44
0-9%	3%	2%	3%
10-19%	5%	3%	4%
20-29%	2%	6%	2%
30-39%	5%	2%	6%
40-49%	-	3%	-
50-59%	10%	12%	7%
60-69%	15%	6%	14%
70-79%	14%	15%	15%
80-89%	29%	26%	20%
90-100%	18%	25%	29%

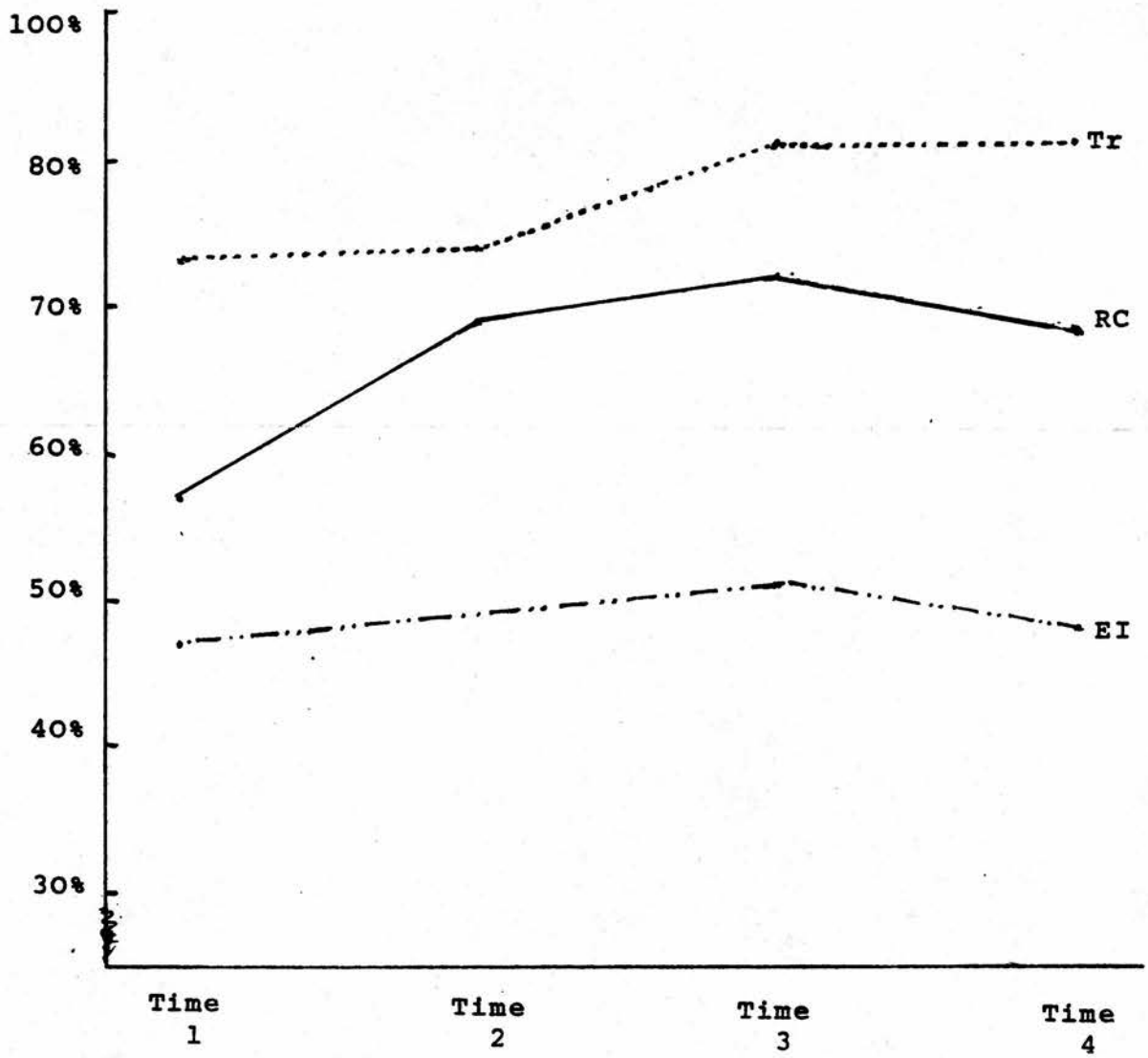


Figure (5.3)

Performance on the Copula at the level of performance of 80% and above

A study of Tables 5.4 and 5.5 reveals that the subjects are spread out across all performance levels. Thus it can be said that the distribution of subjects indicates a cross-section of subjects at all levels of proficiency and could, thus, be said to constitute a continuum.

5.2.1.2 Analysis of Variance (ANOVA)

In order to determine whether variation by Times, Tasks, and Environments was significant or not an ANOVA test was carried out using the sub-program P8V in the BMDP-79. This technique of statistical analysis permits us to overcome the ambiguity involved in assessing significant differences when more than one comparison is made. It allows us to answer the question whether there is an overall indication that the experimental treatments are producing differences among the means of the various groups.

(a) Using the subjects' scores at Time One of all three Tasks to assess the significance of the difference of the means among the experimental treatments, i.e. Tasks and the means of the Environments, the results were as follows:

Tasks

$F(2) = 12.86, p<.01$

This shows that the Tasks produce significantly different results which supports the findings of the t-test in 5.1.1 above.

Environments

$F(2) = 30.63, p<.01$

This highly significant result shows that whatever differences there are among the means of the three

Environments these differences are statistically significant.

(b) The second step was to see whether performance by Times was significantly different. Initially the data involving the subjects' scores on the two written Tasks, Tr and RC was used to ascertain whether there was any development between Times One and Three. The result was

$$F(2) = 10.31,\ p<.01$$

(c) In order to ascertain whether there was significant development in all Tasks between Times One and Four and to give support to the above results concerning variation by Time, Task and Environment a further ANOVA test was carried out this time using the subjects' scores on all three Tasks at Times One and Four. Table 5.5A,B,C summarise the results.

A. by Times
(Combined Means of all Environments)

Task	Time	
	1	4
Tr	78.814	87.318
RC	69.504	82.085
EI	66.558	73.566

B. by Environments
(Combined Means of Scores at Times One and Four)

Task	Pre-Nom	Pre-Adj	Pre-Loc
Tr	87.430	86.151	75.616
RC	81.802	83.407	62.174
EI	83.477	66.395	60.314

C. Times by Environments
(Combined Means of Scores on all Tasks)

Times	Pre-Nom	Pre-Adj	Pre-Loc
1	79.124	74.605	61.147
4	89.349	82.698	70.922

TABLE 5.5

A graphic representation of these tables is displayed in Figure 5.4, A,B,C consecutively.

The results above clearly point to an overall pattern of accuracy/acquisition of the order Pre-Nom, Pre-Adj, Pre-Loc; which is only violated once on the combined scores of Times One and Four in the RC Task (Table 5.5B) and (Figure 5.4B) where the second Environment scored higher than the first one.

Table 5.5C and Figure 5.4C show that development is continuous in all three Environments though the speed slightly varies from an Environment to another. While Pre-Loc underwent a development of 10% Pre-Adj developed by only 8% while Pre-Nom showed a 10% development. Thus Time proved to be a significant factor in the development of the subjects' knowledge of the copula

$F(1) = 64.76, p<.01$

Differences among the means of the Environments again proved to be very highly significant

$F(2) = 74.37, p<.01$

The development of this structural area as a whole in each Task also varies. While development on the RC Task was the greatest 13%, it was 9% on the Tr and 7% on the EI. This is very interesting since, taking general performance into consideration, there was hardly any progress in the mean of the subjects' scores between Time One and Time Four (Figure 5.1 above). This indicates that whatever backsliding had taken place it could not have been in this structural area.

Differences in the means among Tasks were statistically very highly significant

$F(2) = 24.85, p<.01.$

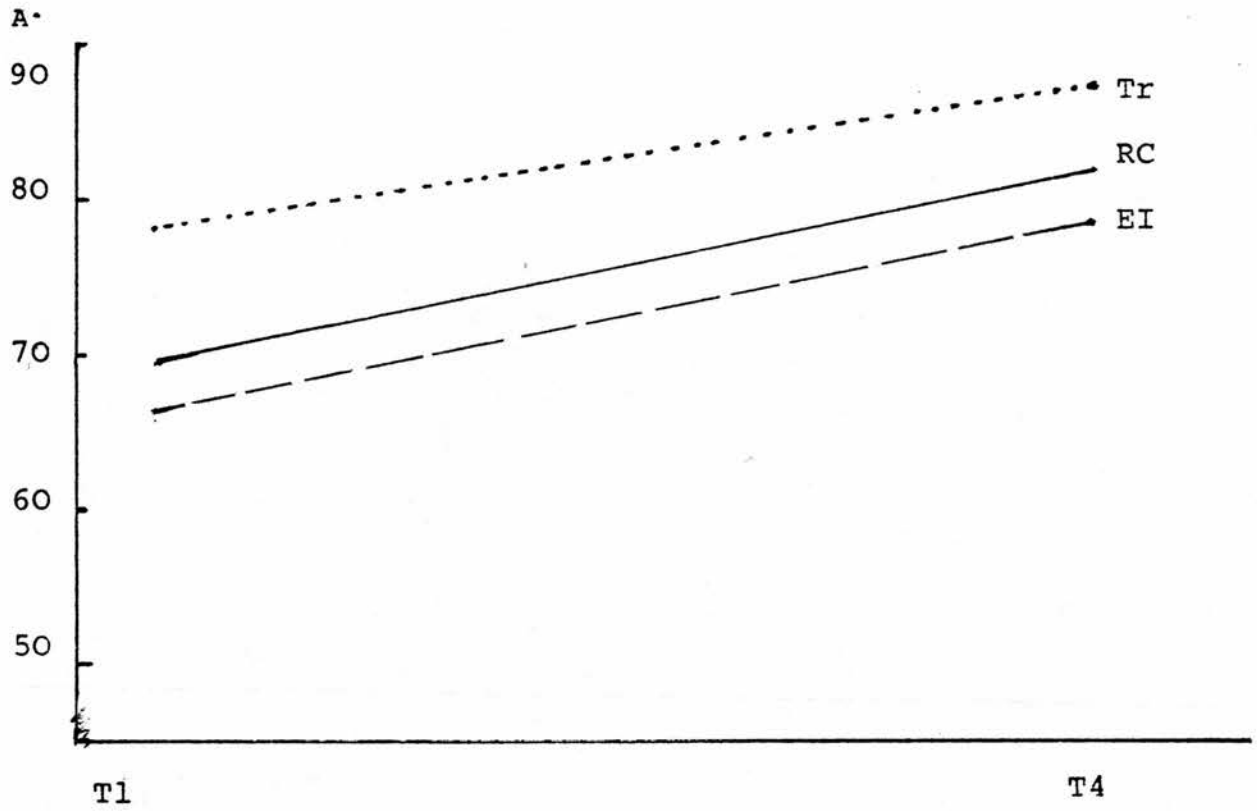


Figure (5.4)

Development of the Copula between Times One and Four

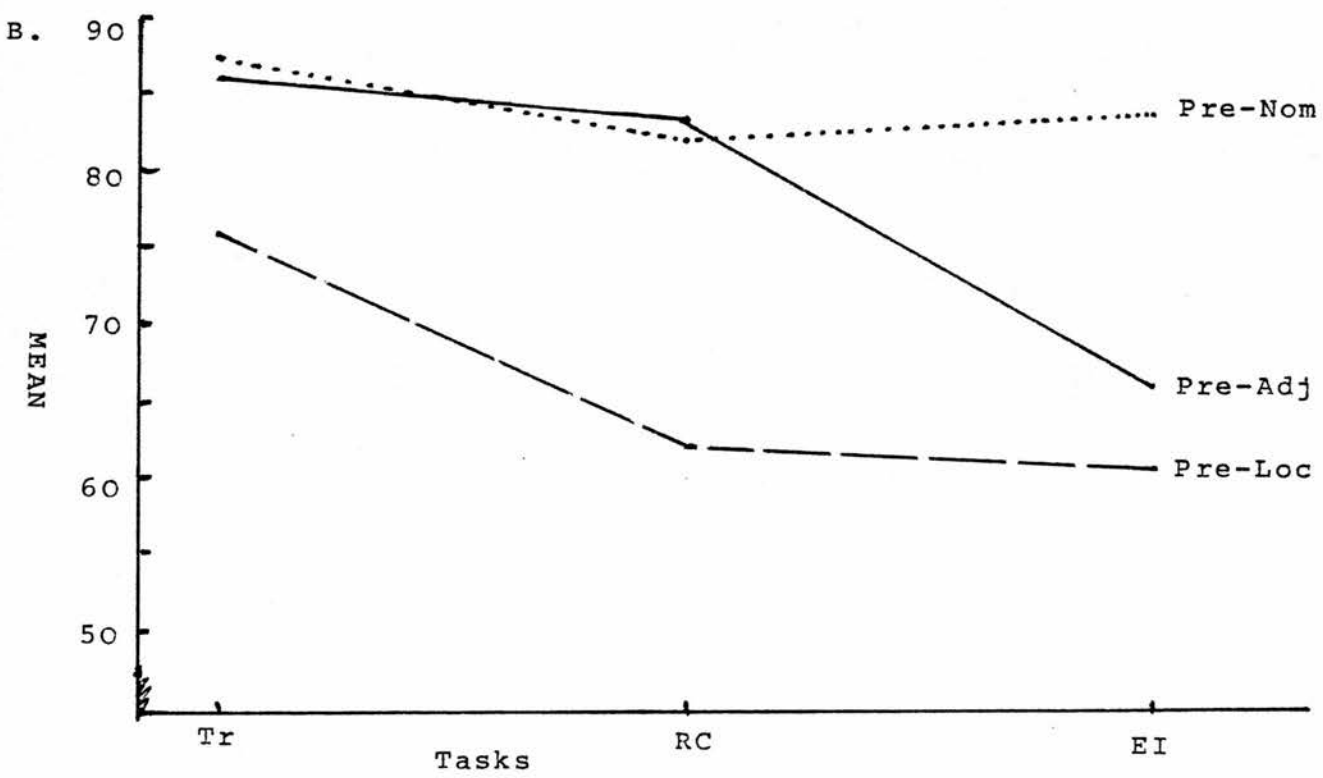


Figure (5.4)

Means of the Subjects' Combined Scores at Times One and Four

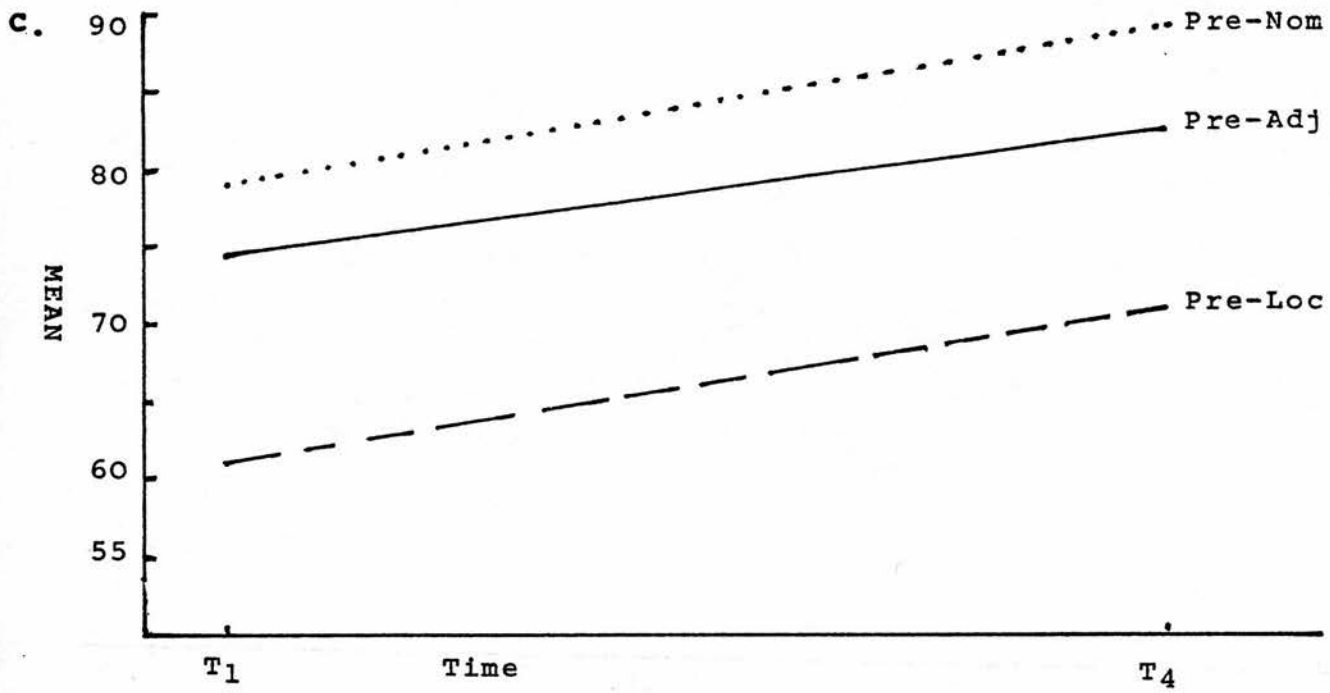


Figure (5.4)

Development of the Combined Means of all Three Tasks of each Environment between Times One and Four

5.2.1.3 Implicational Analysis

A model that can serve to isolate developmental stages or sequence of learning is implicational scaling (2.3.2 above). From the above mentioned results one can say that there is a good case for an accuracy/acquisition order of Pre-Nom, Pre-Adj, Pre-Loc at the cross-sectional level. In order to find out whether the same order is true on the individual level an implicational analysis was carried out.

As noted above (2.3.2) Guttman (implicational) scales are unidimensional in that the component items all measure movement towards or away from the same single underlying object. In our case, the movement is towards the full realization of the copula. The scales are also cumulative in that they imply that the component items can be ordered by degree of difficulty and responding positively to a difficult item will always mean responding positively to whatever items that are less difficult and vice versa.

It was also noted that one of the ways of using Guttman scales is by dichotomising data through the use of a division (cutting point) into two portions, + acquired (1), and - acquired (0). The choice of a division point which is arbitrary means that the researcher considers any subject who has scored the division point and above as having acquired the use of the structure under investigation, while if the score is anywhere below this division point the subject is considered not to have acquired it.

From the results of the previous section an accuracy/acquisition order was suggested. In this situation, if it were assumed the Pre-Nom is the easiest or the first to be acquired Pre-Loc is the most difficult, and Pre-Adj falls

between the two, these Environments can be placed in implicational order by the proportions of subjects who acquired the use of the Copula in each Environment.

Taking the subjects' performance on the Copula at Time Four of the experiment as an example we start with the Tr Task. (The choice of Time Four was made only because the number of subjects taking part is less than that at any of the other Times.) Table 5.6A displays the actual scores on Tr Time Four, while Table 5.6B replaces it using the division point of 80%. (The division point was chosen because it was considered fair for a subject to be said to have acquired the use of a structure if he uses it correctly eight out of ten times.) Note that the subjects fall into scale type, i.e. subjects who had not acquired Pre-Nom would not know any of the other two Environments and those who had not acquired Pre-Adj would not know Pre-Loc. Similarly those who had acquired the third Environment would know the first two and those who had acquired the second Environment would know the first one but not necessarily the third one. A coefficient of reproducibility (R) can be calculated using the formula below.

The general guideline to the interpretation of these measures is that a coefficient of reproducibility higher than .9 is considered to indicate a valid scale while a coefficient of scalability should be well above .6 if the scale is truly unidimensional and cumulative (cf. 2.3.2.1 above).

$$R = 1 - \frac{\text{N of Deviations}}{\text{N of Rows} \times \text{N of Columns}}$$

using the data in Table 5.6B.

$$R = 1 - \frac{0}{44 \times 3}$$

TABLE No. 5.6 Copula Realization

Translation Time 4

	A			B		
Subject	Pre-Nom	Pre-Adj	Pre-Loc	Pre-Nom	Pre-Adj	Pre-Loc
10	0	0	0	0	0	0
12	0	0	0	0	0	0
14	63	50	13	0	0	0
4	75	75	50	0	0	0
11	88	63	50	1	0	0
13	88	75	63	1	0	0
24	100	75	50	1	0	0
8	88	88	38	1	1	0
34	88	88	50	1	1	0
1	88	88	63	1	1	0
3	100	88	63	1	1	0
9	100	88	63	1	1	0
40	100	88	75	1	1	0
20	100	100	63	1	1	0
48	100	100	63	1	1	0
2	100	100	88	1	1	1
5	100	100	88	1	1	1
19	100	100	88	1	1	1
27	100	100	88	1	1	1
31	100	100	88	1	1	1
37	100	100	88	1	1	1
41	100	100	88	1	1	1
6	100	100	100	1	1	1
7	100	100	100	1	1	1
15	100	100	100	1	1	1
17	100	100	100	1	1	1
18	100	100	100	1	1	1
21	100	100	100	1	1	1
25	100	100	100	1	1	1
26	100	100	100	1	1	1
28	100	100	100	1	1	1
29	100	100	100	1	1	1
30	100	100	100	1	1	1
32	100	100	100	1	1	1
33	100	100	100	1	1	1
35	100	100	100	1	1	1
36	100	100	100	1	1	1
38	100	100	100	1	1	1
39	100	100	100	1	1	1
42	100	100	100	1	1	1
43	100	100	100	1	1	1
44	100	100	100	1	1	1
46	100	100	100	1	1	1
47	100	100	100	1	1	1

R = 1.0000

which is a perfect scale, therefore the coefficient of scalability will also be 1.0000.

Using the SPSS Subprogram Guttman Scales the results are displayed in Figure 5.5 below. Note that the Subprogram prints the term ERR above those respondents who passed an item when they should have failed it or failed an item when they should have passed. PCTS indicates the percent of respondents in the row above. (For explanation of the set of statistics see 2.3.2.

Figure 5.5 Guttman Scale (1)

Copula Reduction/Translation Time 4

Data in Table 5.6 above

Item	3		2		1		
RESP.	0	1	0	1	0	1	
	ERR		ERR		ERR		
3	0	29	0	29	0	29	29
	ERR						
2	8	0	0	8	0	8	8
			ERR				
1	3	0	3	0	0	3	3
					ERR		
0	4	0	4	0	4	0	4
SUMS	15	29	7	37	4	40	44
PCTS	37	66	16	84	9	91	
ERRORS	0	0	0	0	0	0	0

STATISTICS

Coefficient of Reproducibility = 1.0000
Minimum Marginal Reproducibility = 0.8030
Percent Improvement = 0.1970
Coefficient of Scalability = 1.0000

The above figure shows that Env. 3, the Pre-Loc, is the most difficult while Env. 1, the Pre-Nom, is the easiest.

Similarly Table 5.7A displays the subjects' scores on the RC Task while 5.7B replaces it at the division point of 80%.

Figure 5.6 displays the results of the Subprogram Guttman Scale.

Figure 5.6 Guttman Scale(2)

Copula Reduction/Recognition and Correction Time 4

Data in Table 5.7 above.

Item	3		2		1		
RESP.	0	1	0	1	0	1	
	ERR		ERR		ERR		
3	0	21	0	21	0	21	21
	ERR						
2	12	1	1	12	0	13	13
			ERR				
1	1	0	1	0	0	1	1
					ERR		
0	9	0	9	0	9	0	9
SUMS	22	22	11	33	9	35	44
PCTS	50	50	25	75	20	80	
ERRORS	0	1	1	0	0	0	2

STATISTICS

Coefficient of Reproducibility = 0.9848
Minimum Marginal Reproducibility = 0.6818
Percent Improvement = 0.3030
Coefficient of Scalability = 0.9524

And since R of Reproducibility is significant at .9 and R of Scalability is significant at .6 the result is very highly significant.

generally held to be

TABLE No. 5.7 Copula Realization

Recognition & Correction Time 4

	A			B		
Subject	Pre-Nom	Pre-Adj	Pre-Loc	Pre-Nom	Pre-Adj	Pre-Loc
12	0	0	0	0	0	0
10	25	13	13	0	0	0
4	50	75	13	0	0	0
3	50	100	50	0	1	0
11	63	50	25	0	0	0
24	63	63	25	0	0	0
9	63	75	50	0	0	0
14	75	63	38	0	0	0
8	75	75	0	0	0	0
5	75	75	50	0	0	0
1	88	88	38	1	1	0
40	88	88	50	1	1	0
34	88	100	63	1	1	0
32	100	88	63	1	1	0
7	100	100	50	1	1	0
20	100	100	50	1	1	0
31	100	100	50	1	1	0
48	100	100	50	1	1	0
2	100	100	63	1	1	0
18	100	100	75	1	1	0
21	100	100	75	1	1	0
25	100	100	75	1	1	0
41	100	100	75	1	1	0
13	88	88	88	1	1	1
6	100	100	88	1	1	1
27	100	100	88	1	1	1
29	100	100	88	1	1	1
35	100	100	88	1	1	1
37	100	100	88	1	1	1
47	100	100	88	1	1	1
15	100	100	100	1	1	1
17	100	100	100	1	1	1
19	100	100	100	1	1	1
26	100	100	100	1	1	1
28	100	100	100	1	1	1
30	100	100	100	1	1	1
33	100	100	100	1	1	1
36	100	100	100	1	1	1
38	100	100	100	1	1	1
39	100	100	100	1	1	1
42	100	100	100	1	1	1
43	100	100	100	1	1	1
44	100	100	100	1	1	1
46	100	100	100	1	1	1

Figure 5.7 displays the results of EI Time Four as displayed in Table 5.8A and B.

Figure 5.7 Guttman Scale (3)

Copula Reduction/Elicited Imitation Time 4

Data in Table 5.8 above

Item	3		2		1		
RESP.	0	1	0	1	0	1	
	ERR		ERR		ERR		
3	0	9	0	9	0	9	9
	ERR						
2	8	3	3	8	0	11	11
			ERR				
1	14	0	14	0	0	14	14
					ERR		
0	10	0	10	0	10	0	10
SUMS	32	12	27	17	10	34	44
PCTS	73	27	61	39	23	77	
ERRORS	0	3	0	0	0	0	6

STATISTICS

Coefficient of Reproducibility = 0.9545
Minimum Marginal Reproducibility = 0.7045
Percent Improvement = 0.2500
Coefficient of Scalability = 0.8462

Table 5.9 displays the coefficients of Reproducibility and Scalability for the other Times of the experiment. The scores for each of these are in Appendix B Tables 6-13.

TABLE No. 5.8 Copula Realization

Elicited Imitation Time 4

	A			B		
Subject	Pre-Nom	Pre-Adj	Pre-Loc	Pre-Nom	Pre-Adj	Pre-Loc
11	13	0	0	0	0	0
10	50	13	13	0	0	0
8	50	25	38	0	0	0
12	63	0	0	0	0	0
14	63	13	13	0	0	0
5	63	38	38	0	0	0
31	75	38	50	0	0	0
4	75	63	63	0	0	0
6	75	63	75	0	0	0
2	75	75	50	0	0	0
9	88	50	38	1	0	0
1	88	63	38	1	0	0
7	88	63	63	1	0	0
40	88	63	75	1	0	0
3	88	75	50	1	0	0
21	88	75	63	1	0	0
24	100	38	38	1	0	0
34	100	50	25	1	0	0
32	100	50	63	1	0	0
20	100	75	50	1	0	0
35	100	75	63	1	0	0
41	100	75	63	1	0	0
44	100	75	63	1	0	0
43	88	75	100	1	0	1
38	100	63	100	1	0	1
25	100	75	100	1	0	1
48	88	88	63	1	1	0
13	88	88	75	1	1	0
27	88	88	75	1	1	0
36	100	88	63	1	1	0
17	100	88	75	1	1	0
29	100	88	75	1	1	0
15	100	100	75	1	1	0
30	100	100	75	1	1	0
37	100	100	75	1	1	0
18	100	88	88	1	1	1
19	100	88	88	1	1	1
28	100	88	88	1	1	1
33	100	88	88	1	1	1
26	100	88	100	1	1	1
47	100	100	88	1	1	1
39	100	100	100	1	1	1
42	100	100	100	1	1	1
46	100	100	100	1	1	1

Table 5.9 Coefficients of Reproducibility and Scalability Copula Reduction

Task	Time	R. Reproducibility	R. Scalability
Translation	1	1.0000	1.0000
	2	0.9556	0.8182
	3	0.9889	0.9355
Recognition and Correction	1	0.9778	0.9375
	2	0.9444	0.8148
	3	0.9889	0.9608
Elicited Imitation	1	0.9774	0.9363
	3	0.9048	0.7447

The results all above show a well-established implicational pattern cross-sectionally and longitudinally.

5.2.1.3.1 A Suggested Model

The use of implicational scales in the way above is suitable for use when one is looking for categorical use or full acquisition. On the other hand in the study of variation one would naturally aim at including all the variation possible in the study. The use of a division point necessarily obliterates all the variation above and below it and thus loses very valuable information.

Alternatively the model we are going to use preserves nearly all the variation among scores. This will enable us to establish whether the same pattern remains constant through the whole learning process and not only at the categorical level. The only margin we are going to allow is that of 10% for uniformity of calculations, i.e. only a difference of more

than 10% is to be considered as a deviation. This as could be noted from the tables above does not lose any variation whatsoever.

Using the data in Table 5.6A above and the formula

$$R = 1 - \frac{\text{N of deviations}}{\text{N of rows x N of Columns}}$$

since there are no deviations the Coefficient of Reproducibility is 1.0000.

As for the data in Table 5.7A there are 3 deviations.

$$R = 1 - \frac{3}{3 \times 44}$$

$$R = 0.9773$$

Similarly the data in Table 5.8A shows 7 deviations

$$R = 1 - \frac{7}{3 \times 44}$$

$$R = 0.9470$$

Table 5.10 displays the results of the rest of the data.

The corresponding scores are in Appendix B Tables 6-13.

Table 5.10

Task	Time	R of Reproducibility
Translation	1	0.9612
	2	0.9591
	3	0.9881
Recognition and Correction	1	0.9167
	2	0.9196
	3	0.9483
Elicited Imitation	1	0.9209
	3	0.9206

These results indicate beyond any doubt that there is a hierarchy of learning the copula and that corresponding developmental stages can be derived from this implicational ordering in a clear-cut way.

5.2.1.4 Rank order according to accuracy

In order to find out whether the rank order of subjects according to their accuracy remains consistent from one Time of a Task to the other a Spearman Rank-order Correlation was computed using the SPSS Subprogram Spearman Correlation. This is a non-parametric correlation, i.e. it makes no assumptions about the distribution of cases on the variables. The requirements for this type of correlation is an ordinal level of measurement and a large number of categories or ranks on each of the variables. It is basically designed to determine whether two rankings of the same cases are similar. " Spearman's r_s is defined as the sum of the squared differences in the paired ranks for two variables over all cases, divided by a quantity which can perhaps best be described as follows: it is what the sum of the squared differences in ranks would have been had the two sets of rankings been totally independent. This quotient is then subtracted from 1 to produce the standardised coefficient. Spearman r_s is then formally defined as:

$$r_s = 1 - \frac{6 \sum_{i=1}^{N} d_i^2}{N^3 - N}$$

For computational purposes and particularly to correct for the occurrence of tied ranks, Spearman r_s can be redefined as:

$$r_s = \frac{Tx + Ty - \sum_{i=1}^{N} di^2}{2(Tx\ Ty)^{1/2}}$$

where d_i is the difference between the ranks of the two variables for case i, and where Tx or Ty is to be defined by the quantity

$$\frac{N(N^2-1) - \sum R(R^2-1)}{12}$$

where R is the number of ties at a given rank for X or Y respectively."

For this purpose it was necessary to obtain a composite number from the three scores so that the first score was given the highest priority, the second next followed by the third; the scores were multiplied by a factor and then summed.

e.g.

If the scores were:-			(Calculating by hand) the rankings would be:-
100	100	50	2
100	100	80	1
90	90	100	4
90	90	80	5
90	100	20	3

To obtain the composite number:-

100 x 1000000 + 100 x 1000 + 50 = 100100050

100100080

Those numbers were then ranked by the program which handles tied scores and missing values. This procedure ensured of the subjects' ranking according to the accuracy order of the items and not on the basis of any or all the items joined together. The results are displayed in Table 5.11A, B and C.

Table 5.11

A. Spearman Correlation Coefficients
Translation Task

Time	1	2	3	4
1	1.0000 *****	.7220 n = 60 SIG = .001	.6571 n = 60 SIG = .001	.8386 n = 44 SIG = .001
2		1.0000 *****	.6288 n = 60 SIG = .001	.7489 n = 43 SIG = .001
3			1.0000 *****	.8095 n = 40 SIG = .001
4				1.0000 *****

Table 5.11

B. Spearman Correlation Coefficients
Recognition and Correction Task/Copula Reduction

Time	1	2	3	4
1	1.0000 *****	.8157 n = 60 SIG = .001	.6474 n = 60 SIG = .001	.7967 n = 40 SIG = .001
2		1.0000 *****	.6663 n = 60 SIG = .001	.8626 n = 40 SIG = .001
3			1.0000 *****	.8821 n = 40 SIG = .001
4				1.0000 *****

Table 5.11

C. Spearman Correlation Coefficients
Elicited Imitation Tasks/Copula Reduction

Time	1
4	.6731 n = 44 SIG = .001

The above results all being highly significant show some consistency in the rank ordering of the subjects according to accuracy across time, i.e. the ordering is somewhat similar. However, the somewhat low figures of correlation also reflect considerable movement up and down the continuum of the copula (see Chapter 6 below) which means that learning is actively going on in this structural area.

5.2.2 Negation

5.2.2.1 Preliminary Error Analysis

In this section we are going to present the errors that the learners made in their performance on negation. It is first necessary to establish that the term "error" is used in the sense defined by Corder (1967) as those referring to "the systematic errors of the learner from which we are able to reconstruct his knowledge of the language to date, i.e. his transitional competence". Though the data contained some errors of performance "mistakes", resulting mainly from the subjects' misreading a word or misinterprets some sentence mainly through lack of concentration. An example of such mistakes is in the RC Task

He not speak English well (X)
He well not speak English.

In this case the subject has obviously mistaken the word "well" for "will". Such "mistakes" are not part of our investigation

and they are not going to be dealt with here. Another type of error that is not going to be included is those errors of tense or aspect where the continuous (progressive) form of the verb is used where the simple form is the target-like variant.

The types of errors identified in the data are as follows.

1. Error-type One

This is in fact two types of error, but the first type though very important to identify is not large enough in number to be displayed in a useful way, therefore it was combined with the other type of error making each of them a sub-division of error-type one.

(a) no + verb or phrase

By "phrase" here is meant any constituent other than a verb whether it is a noun phrase, an adjective, or a locative prepositional phrase such as "a doctor", "beautiful" or "in the room" consecutively. This error seems to appear at the earliest stage of development and is, at first, generalized to all instances of negation.

e.g. Subject No. 10 Tr Times Two and Three
Subject No. 11 Tr Times 1 and 2.

1. No come teacher to school (S10 Tr_1)
2. No my brother gets up early every morning (S19 RC_1)
3. The man no can help me (S14 RC3)

(b) not + verb or phrase

This error appears after (a) and sometimes replaces it in all instances; however they very often co-exist for some time before error-type (a) disappears. When they do co-exist especially at

some later stage "no" is usually reserved for initial positions only.

e.g. (S12 Tr1,2,3, and 4)

1. He not watched T.V. last night. (S37, RC1)
2. We not play tennis everyday. (S48, RC3)
3. He not was in the library. (S11, Tr4)

2. Error-type Two

Non-standard cop(aux) + neg

This refers to the use of a form of "be" in the negation of main verbs. It seems that the subjects used this variant first wherever there was a subject in the surface structure of the Arabic sentence, otherwise they kept using "not" or "no" in an initial position but still in a pre-verbal position (S8, Tr4). This type of error was never used for imperative where the subjects seemed to move directly from "not" to "don't" which may account for the comparatively very early appearance of "don't". The earliest form of this error-type seems to be "I am not" (S's 11 and 14, Tr4). One might be tempted to consider the use of "I am" here as holophrastic or a memorized chunk but the evidence of other uses of "I" without "am" by the same learners at the same Time tends to weaken this possibility. For instance S14 on the same Task and at the same Time produces:

I not can to swim

and I not will go.

e.g. 1. We aren't play tennis everyday (S20, Tr2)
2. The pupil wasn't clean the blackboard (S59, Tr1)
3. Ali is not speak English well (S8, RC2)

3. Error-type Three

Unanalyzed "don't"

These are the cases where "don't" replaces "not" or "no" as a negator, i.e. "don't" is holophrastic. This Error-type is often generalized to all instances of negation.

e.g. 1. The pupils must don't come ... (S60, RC2)
2. The money don't in the bank (S36, RC3)
3. He was don't watched T.V. last night (S31, RC1)
4. The girl don't like football (S29, RC1)
5. It don't rain ... (S1, EI3)

4. Error-type Four

Unanalyzed "didn't"

This error occurs when the subject uses "didn't" as a negator to replace "no", or "don't" or when it is generalized into instances where another form of "do" is needed.

e.g. 1. We did not play tennis everyday (S33, Tr2)
2. He didn't was poor (S27, Tr1)
3. These girls didn't sad (S48, RC3)

5. Error-type Five

Unanalyzed "doesn't"

Similar to the last two Error-types this form is also sometimes overgeneralized to situations where other forms are needed, but not as often as any of the last two. The cases where this Error-type more often occurs are where "do" is required, especially when the subject is in the regular plural form, i.e. ending with an "s".

e.g. 1. The bakers doesn't sell meat (S38, Tr3)
2. My father doesn't will buy ... (S31, Tr4)
3. The man doesn't a lawyer (S34, Tr4)
4. Selma does not beautiful (S26, RC4)

Appendix B Tables 25-35 present a complete breakdown of the learners' performance on Negation with quantification of each Error-type as well as the target-like production.

A graphic display of the percentages of these Error-types out of the actual production of the subjects on each of the Tasks is presented in Figure 5.8,A,B,C.

A study of the graphic display of the Error-types shows that though all three are generally similar the degree of similarity between the written Tasks, Figures A and B, is higher than it is between any of them and the EI Task Figure C. The EI Task also shows less "activity" on the part of the subjects than any of the other two Tasks. Generally, taking Times One and Four there is a universal rise in Error-type 2 and 5, a decline in Error-type 1, 3 and 4 though the last is more stable than declining. However the degrees of rise and decline varies from one Error-type to another and from one Task to another.

What is interesting is that though the pattern is similar there are no two Tasks that have an identical spread of errors on the Y axis except that the least number of errors at Time One was Error-type 5 in all Tasks.

5.2.2.2 Determination of Variation

The next step in the analysis of the data on Negation was to determine whether there was variation in the subjects' performance in this structural area. The frequency distribution of the subjects' scores by Times at 10% intervals is displayed in Table 5.12A-C. A graphic representation of the subjects' performance at the level of performance of 80% and above is displayed in Figure 5.9. It is clear from the table that the subjects are spread out across all performance levels. Thus it can be said that the distribution of subjects indicates

Figure 5.8 Percentages of Error-types out of the Actual Production A.

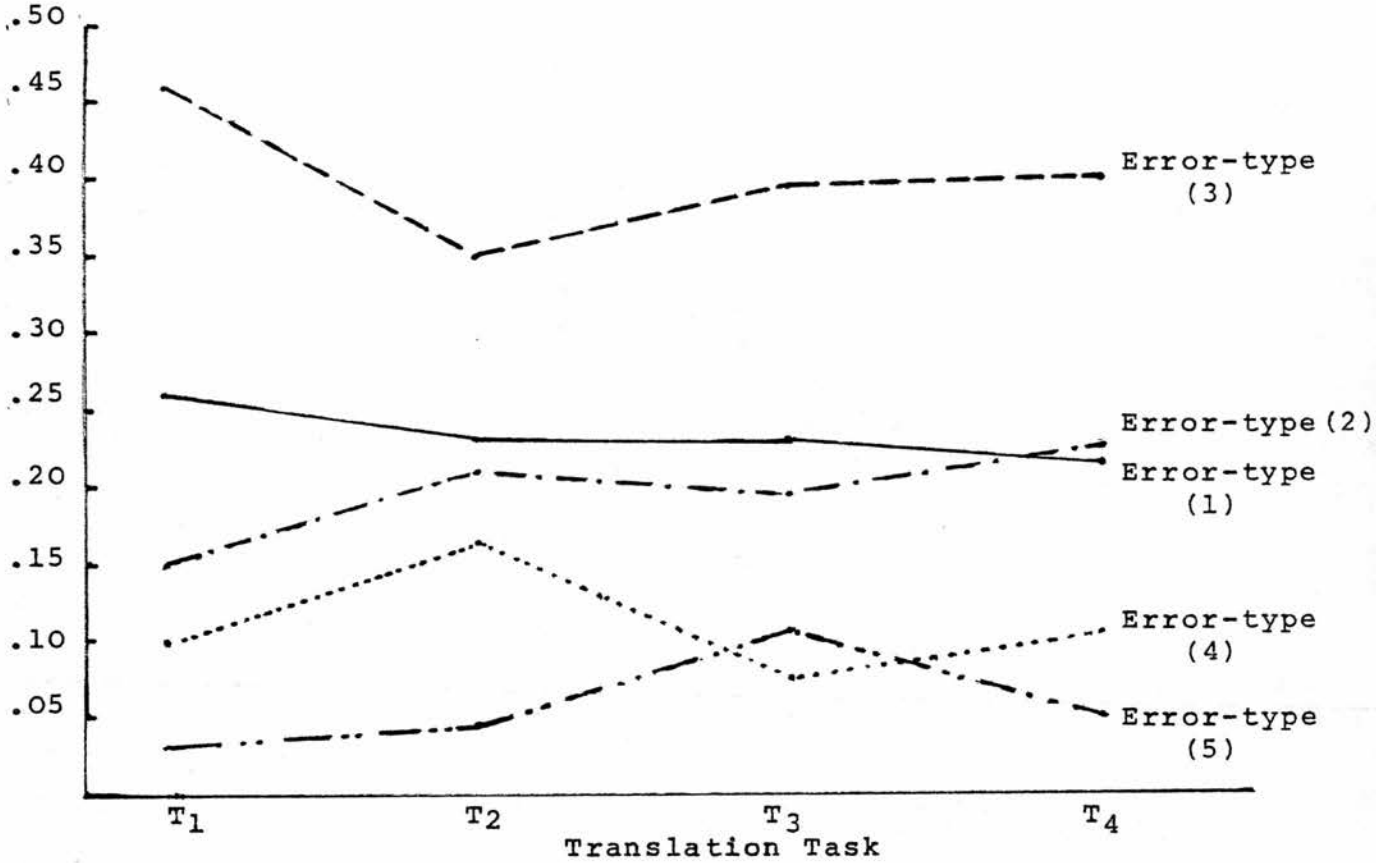


Figure 5.8 Percentages of Error-types out of the Actual Production B.

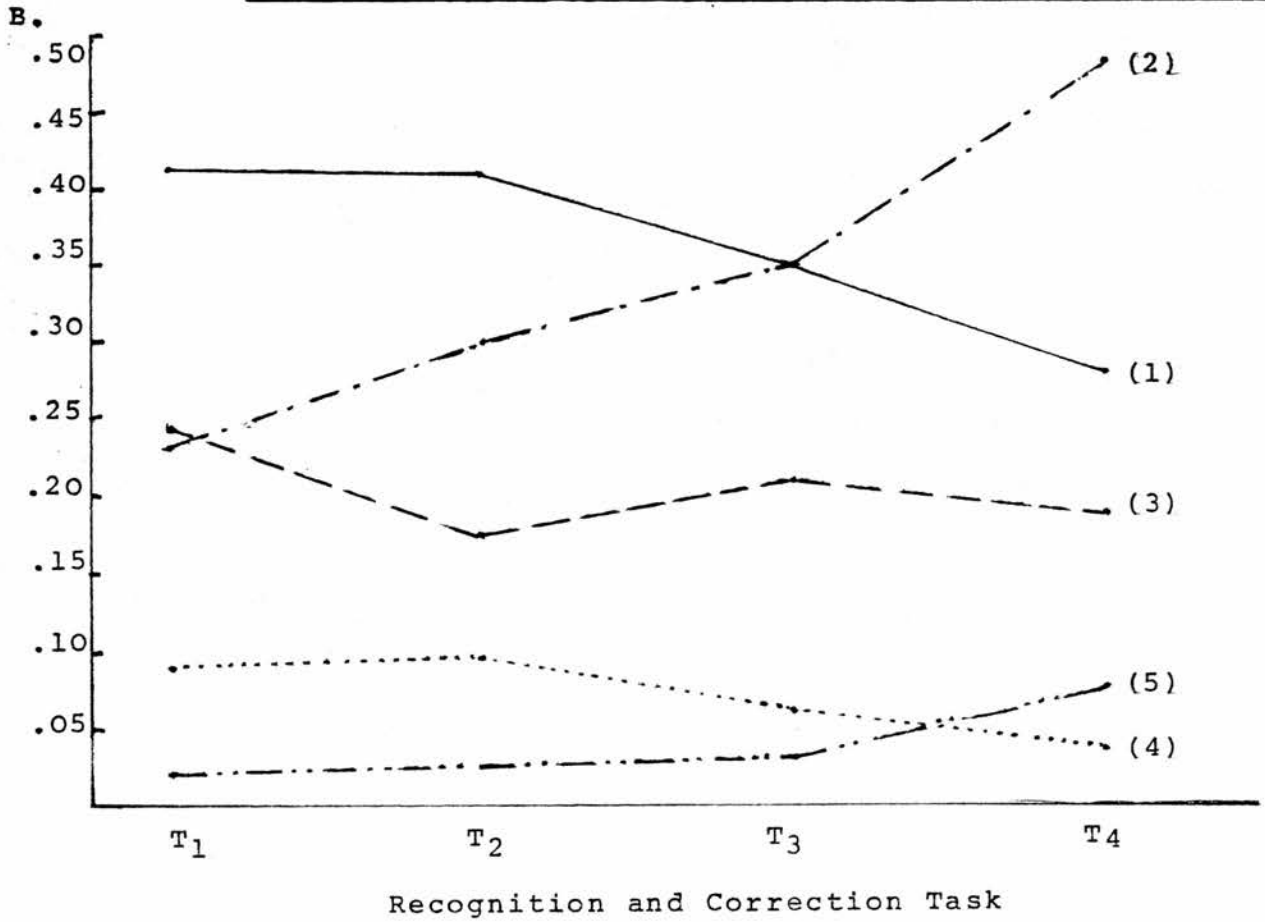
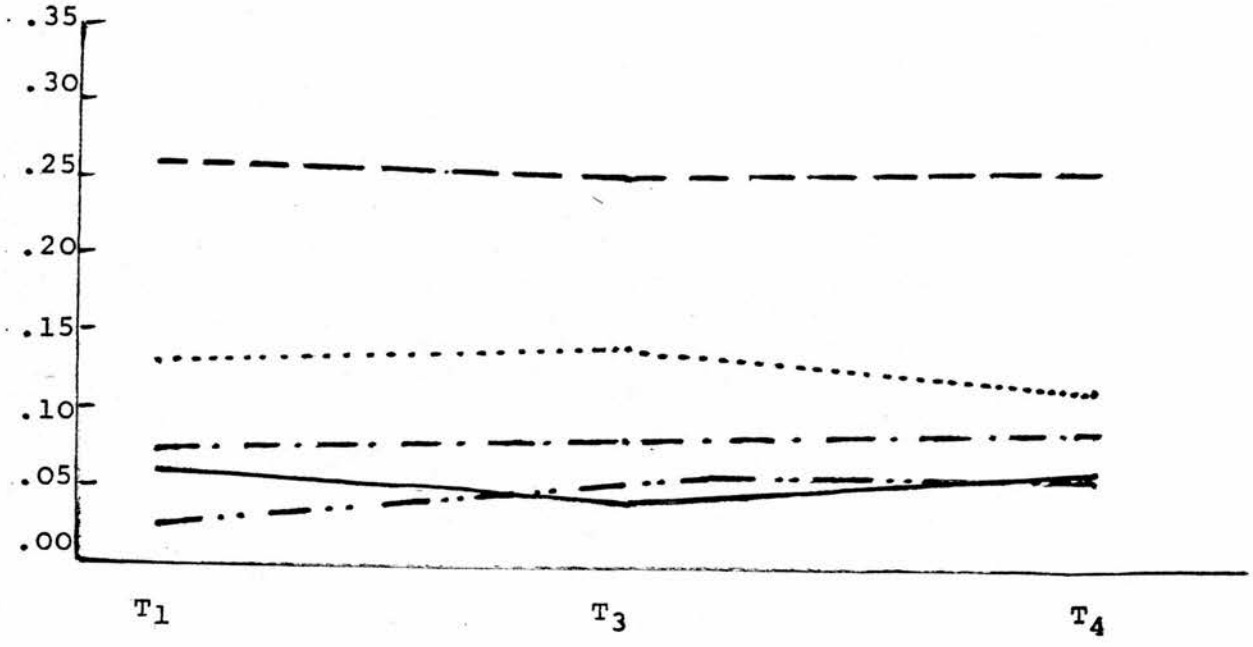


Figure 5.8 Percentages of Error-types out of the Actual Production C.



Elicited Imitation Task

——————— no/not + verb/phrase

— — — — — — unanalyzed "don't"

.—.—.—.—.— non-standard cop(aux) + neg

..... unanalyzed "didn't"

—··—··—··—· unanalyzed "doesn't"

Table 5.12 Frequency Distribution of Scores in Negation by Times at 10% Intervals

A. Recognition and Correction Task

Time	1	2	3	4
Performance Level	n = 60	n = 57	n = 56	n = 44
0-9%	28%	29%	30%	36%
10-19%	4%	2%	1%	5%
20-29%	6%	9%	5%	3%
30-39%	2%	2%	3%	4%
40-49%	7%	8%	7%	0.9%
50-59%	6%	4%	4%	5%
60-69%	8%	6%	8%	9%
70-79%	7%	5%	3%	5%
80-89%	11%	9%	12%	8%
90-100%	21%	27%	28%	20%

Table 5.12 Frequency Distribution of Scores by Times at 10% Intervals

B. Translation Task

Time	1	2	3	4
Performance Level				
0-9%	29%	28%	27%	28%
10-19%	3%	1%	4%	0.9%
20-29%	4%	4%	4%	4%
30-39%	2%	2%	3%	3%
40-49%	4%	8%	7%	3%
50-59%	4%	11%	8%	5%
60-69%	8%	7%	8%	6%
70-79%	9%	4%	8%	5%
80-89%	13%	10%	4%	13%
90-100%	24%	26%	28%	33%

Table 5.12 Frequency Distribution of Scores in negation by Times at 10% Intervals

C. Elicited Imitation

Time	1	3	4
Performance Level	n = 59	n = 42	n = 44
0-9%	16%	16%	15%
10-19%	5%	9%	8%
20-29%	4%	5%	4%
30-39%	9%	9%	7%
40-49%	5%	5%	3%
50-59%	18%	13%	14%
60-69%	12%	11%	8%
70-79%	11%	7%	10%
80-89%	11%	10%	15%
90-100%	8%	15%	16%

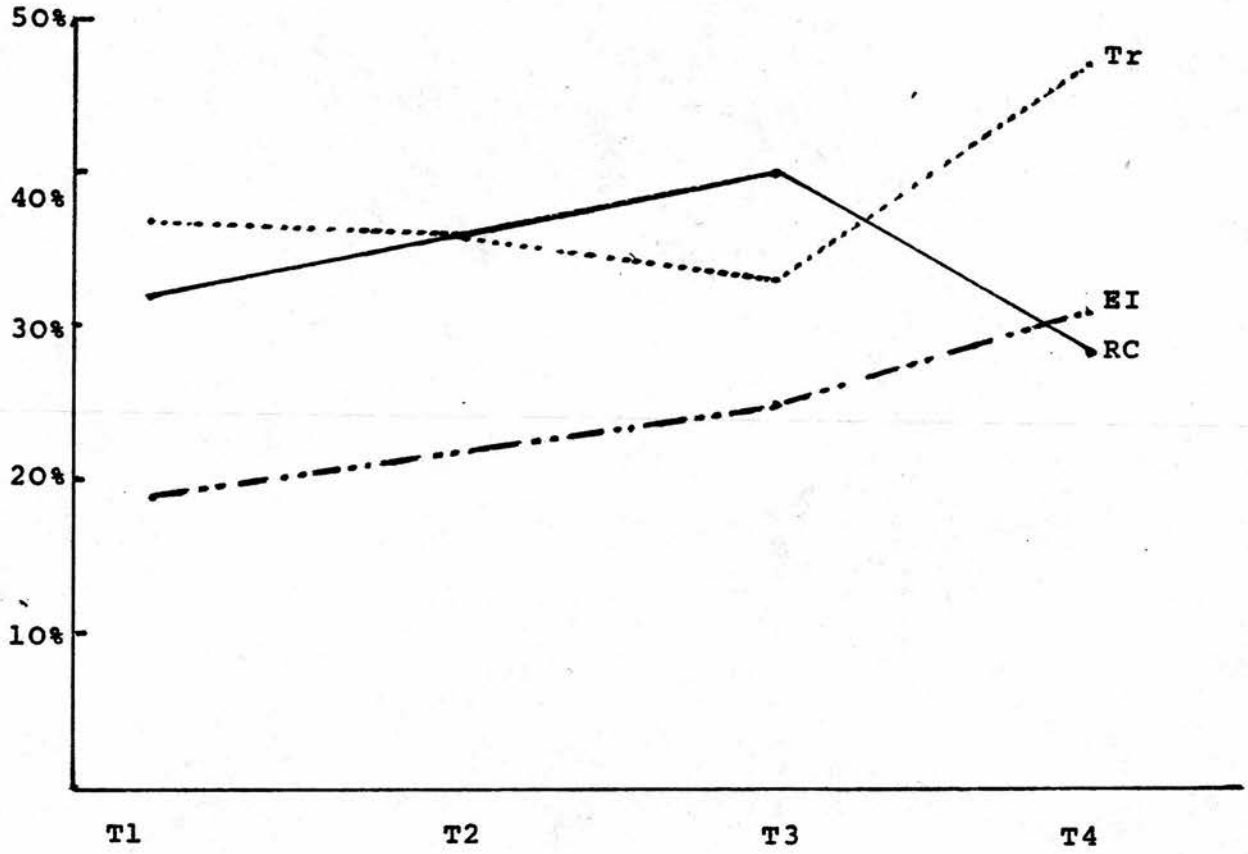


Figure (5.9)

Performance on Negation at Performance Level of 80% and Above

a cross-section of subjects at all levels of proficiency and could, thus, be said to constitute a continuum. Figure 5.9 reveals that at Time Four of the experiment the subjects' knowledge of Negation has developed in both Tr and EI Tasks while it has deteriorated in the RC Task which runs contrary to their performance in Copula Realization where their knowledge has undergone some development. This confirms the conclusion we arrived at in 5.2.1.2 above that whatever backsliding the subjects had undergone should be in this structural area.

What we did next was to ascertain whether variation actually existed among the five Environments of Negation chosen for this study, namely Modals, Copula, do + neg + MV (don't), did + neg + MV (didn't), does + neg + MV (doesn't). The performance of all subjects on each of the Environments was calculated and Table 5.13A-K displays the frequency distribution of the subjects' scores at 10% intervals. A graphic display of the information regarding Times One and Four in Table 5.12 is presented in Figure 5.10A-B. Figure 5.11A-D displays the number of subject having acquired each of the Environments at the performance level of 80% and above. The subjects' performance on each of the Environments is in Appendix B Tables 14-16.

A study of Table 5.12 shows again the subjects are spread out across all performance levels and could be said to constitute a continuum. A study of the graphic display also shows that the pattern for each Task is consistent at all Times except for Tr Task at Time Four when the Modals outscored the Copula, the reason for which will be explained later in this section. It is quite apparent from Figure 5.11 that as far as the categorical use or the assumed full acquisition of the variants is concerned there is a considerable

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

A. RC Time One n = 60

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0.9%	3	4	16	27	35	28%
10-19%	1	4	7	0	0	4%
20-29%	3	4	3	5	3	6%
30-39%	3	0	4	0	0	2%
40-49%	2	11	3	2	3	7%
50-59%	2	6	9	0	0	6%
60-69%	5	0	3	11	4	8%
70-79%	3	11	6	0	0	7%
80-89%	7	5	4	8	9	11%
90-100%	31	15	4	8	9	21%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

B. RC Time Two n = 58

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0.9%	5	3	21	23	31	29%
10-19%	1	2	2	0	0	2%
20-29%	1	6	2	4	13	9%
30-39%	4	0	2	0	0	2%
40-49%	1	6	8	5	3	8%
50-59%	0	6	5	0	0	4%
60-69%	4	0	4	7	3	6%
70-79%	4	5	5	0	0	5%
80-89%	3	9	1	10	2	9%
90-100%	35	21	8	9	6	27%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

C. RC Time Three n = 58

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	4	2	17	27	31	30%
10-19%	1	2	1	0	0	1%
20-29%	2	3	3	2	5	5%
30-39%	1	6	2	0	0	3%
40-49%	0	2	9	3	7	7%
50-59%	1	4	6	0	0	4%
60-69%	5	3	3	5	6	8%
70-79%	3	2	4	0	1	3%
80-89%	3	10	5	15	2	12%
90-100%	38	24	8	6	6	28%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

D. RC Time Four n = 44

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	4	2	14	29	31	36%
10-19%	2	6	4	0	0	5%
20-29%	0	0	0	1	5	3%
30-39%	1	8	0	0	0	4%
40-49%	3	0	3	0	2	4%
50-59%	0	6	6	0	0	5%
60-69%	3	2	5	6	3	9%
70-79%	4	0	8	0	0	5%
80-89%	3	10	1	1	2	8%
90-100%	27	10	3	7	1	20%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

E. Tr Time One n = 60

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	5	8	10	26	39	29%
10-19%	1	7	1	0	0	3%
20-29%	1	3	3	3	3	4%
30-39%	3	0	2	0	0	2%
40-49%	2	2	2	3	4	4%
50-59%	4	2	5	0	0	4%
60-69%	4	0	9	6	5	8%
70-79%	13	8	5	0	0	9%
80-89%	8	8	9	8	5	13%
90-100%	19	22	14	14	4	24%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

F. Tr Time Two n = 58

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	6	7	8	22	37	28%
10-19%	1	0	2	0	0	1%
20-29%	2	1	2	1	5	4%
30-39%	5	0	2	0	0	2%
40-49%	6	4	3	8	1	8%
50-59%	7	8	15	0	1	11%
60-69%	5	0	6	8	0	7%
70-79%	2	3	4	0	4	4%
80-89%	2	11	7	8	0	10%
90-100%	22	24	9	11	10	26%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

G. Tr Time Three n = 56

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	4	5	9	27	30	27%
10-19%	0	2	2	0	6	4%
20-29%	1	3	0	7	1	4%
30-39%	2	0	2	0	3	3%
40-49%	8	5	5	1	0	7%
50-59%	2	3	6	9	1	8%
60-69%	15	0	5	0	2	8%
70-79%	6	4	9	4	0	8%
80-89%	0	6	3	0	3	4%
90-100%	18	28	15	8	10	28%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

H. Tr Time Four n = 44

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	4	6	5	18	28	28%
10-19%	0	2	0	0	0	0.9%
20-29%	0	0	0	4	4	4%
30-39%	2	3	1	0	0	3%
40-49%	1	0	1	3	1	3%
50-59%	1	4	4	0	1	5%
60-69%	0	5	6	1	2	6%
70-79%	3	0	7	0	0	5%
80-89%	4	3	12	6	4	13%
90-100%	29	21	8	12	4	33%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

I. EI Time One n = 59

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	5	3	3	10	26	16%
10-19%	0	1	0	8	6	5%
20-29%	5	3	3	0	0	4%
30-39%	6	4	2	8	6	9%
40-49%	8	5	4	0	0	5%
50-59%	10	18	6	13	7	18%
60-69%	5	7	12	8	4	12%
70-79%	13	10	10	0	0	11%
80-89%	2	3	9	9	8	11%
90-100%	5	5	10	3	2	8%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

J. EI Time Three n = 42

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	5	5	0	7	15	16%
10-19%	0	2	3	6	7	9%
20-29%	4	5	2	0	0	5%
30-39%	2	2	2	7	6	9%
40-49%	5	3	3	0	0	5%
50-59%	5	8	4	6	5	13%
60-69%	4	4	7	6	2	11%
70-79%	6	1	8	0	0	7%
80-89%	2	8	3	6	2	10%
90-100%	8	4	10	4	5	15%

Table 5.13 Frequency Distribution of Scores in Negation by Environments at 10% Intervals

K. EI Time Four n = 44

Performance Level	Modals	Copula	Don't	Didn't	Doesn't	P.C. Total
0-9%	8	5	3	4	12	15%
10-19%	0	2	1	4	11	8%
20-29%	2	4	3	0	0	4%
30-39%	2	1	0	7	5	7%
40-49%	4	2	1	0	0	3%
50-59%	5	6	7	8	5	14%
60-69%	2	1	3	9	2	8%
70-79%	15	3	4	0	0	10%
80-89%	1	9	9	8	6	15%
90-100%	5	11	13	4	3	16%

A.

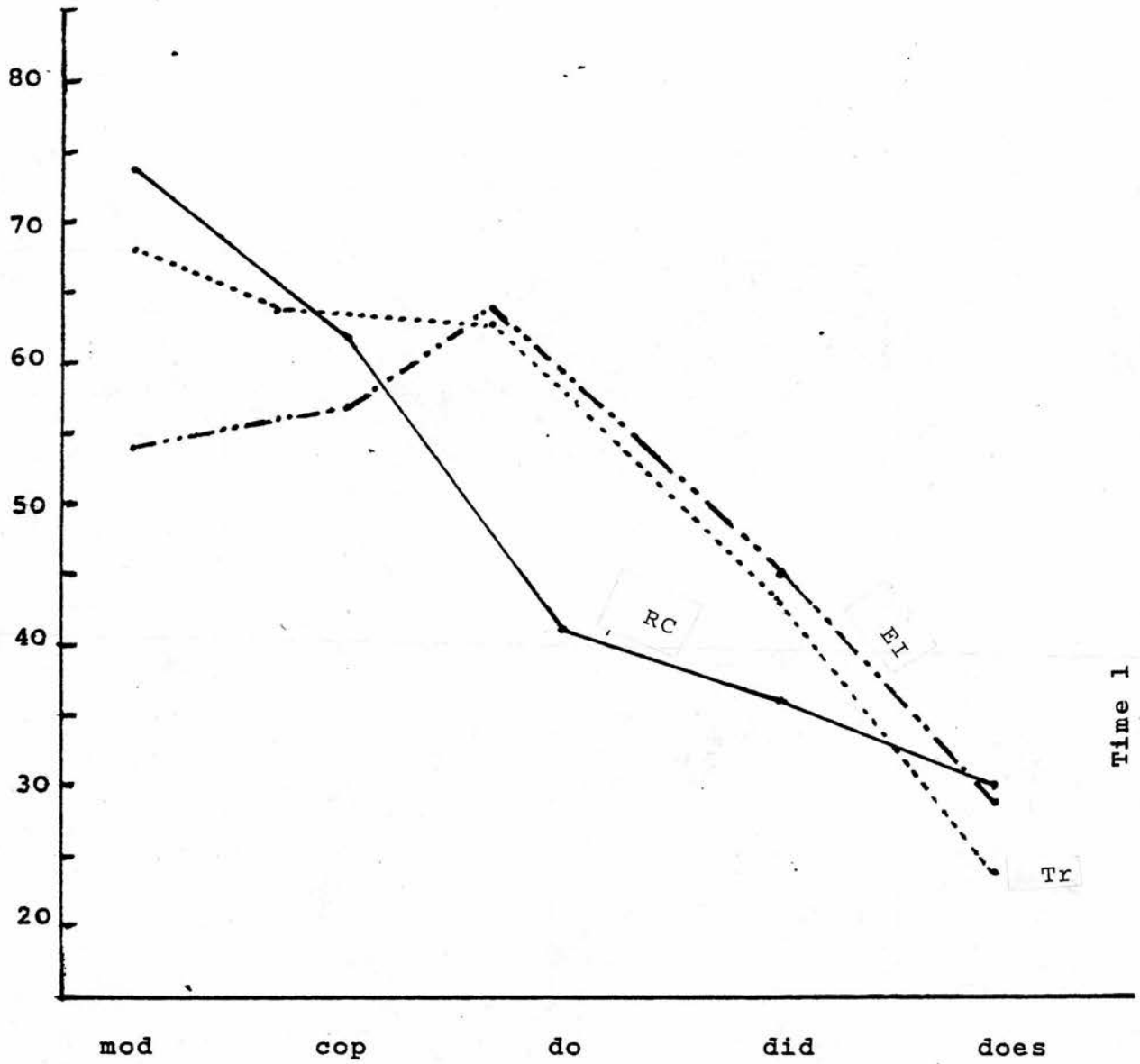


Figure (5.10)

Means of the Percentages of Subjects' Scores on Negation

B.

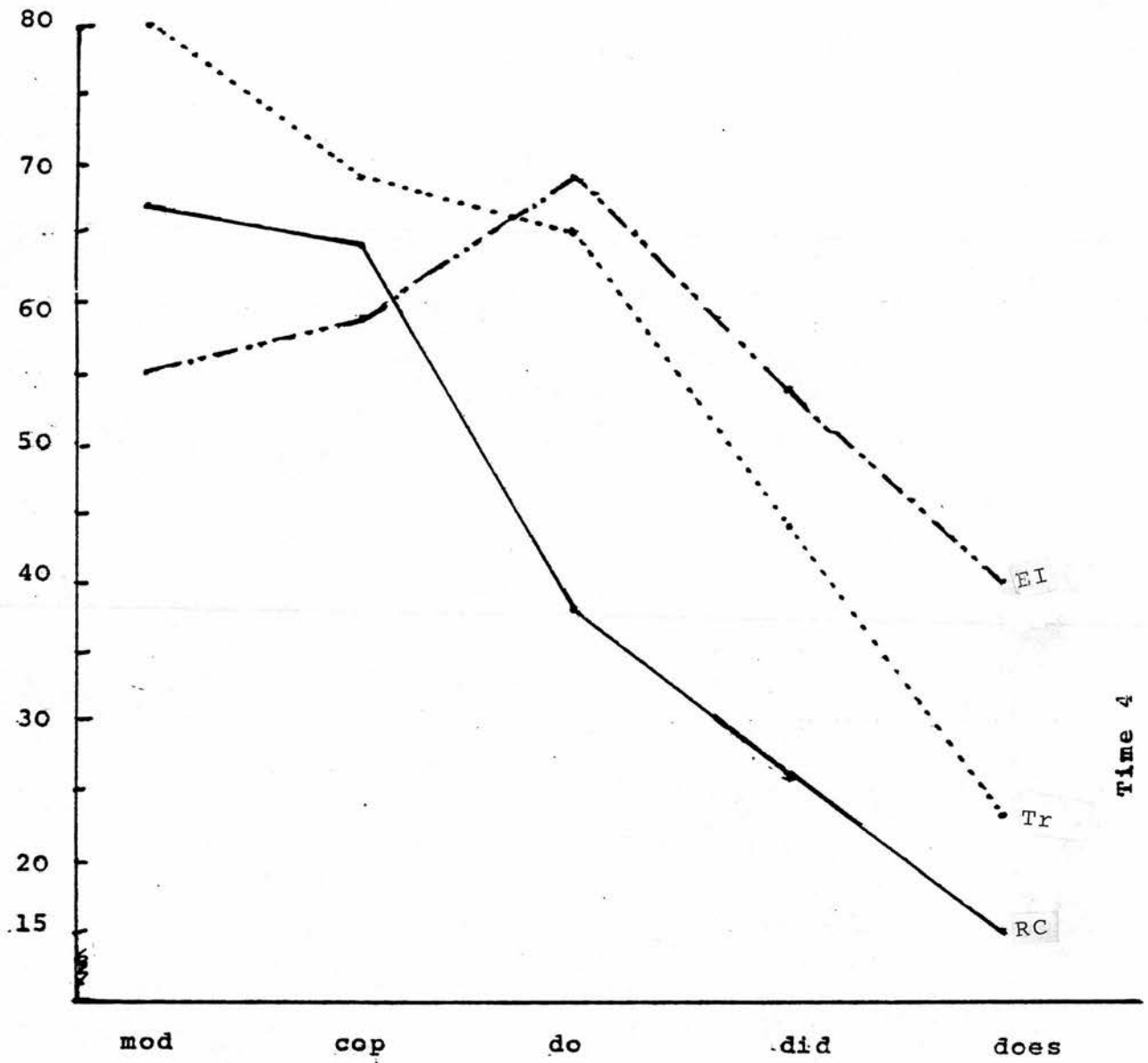
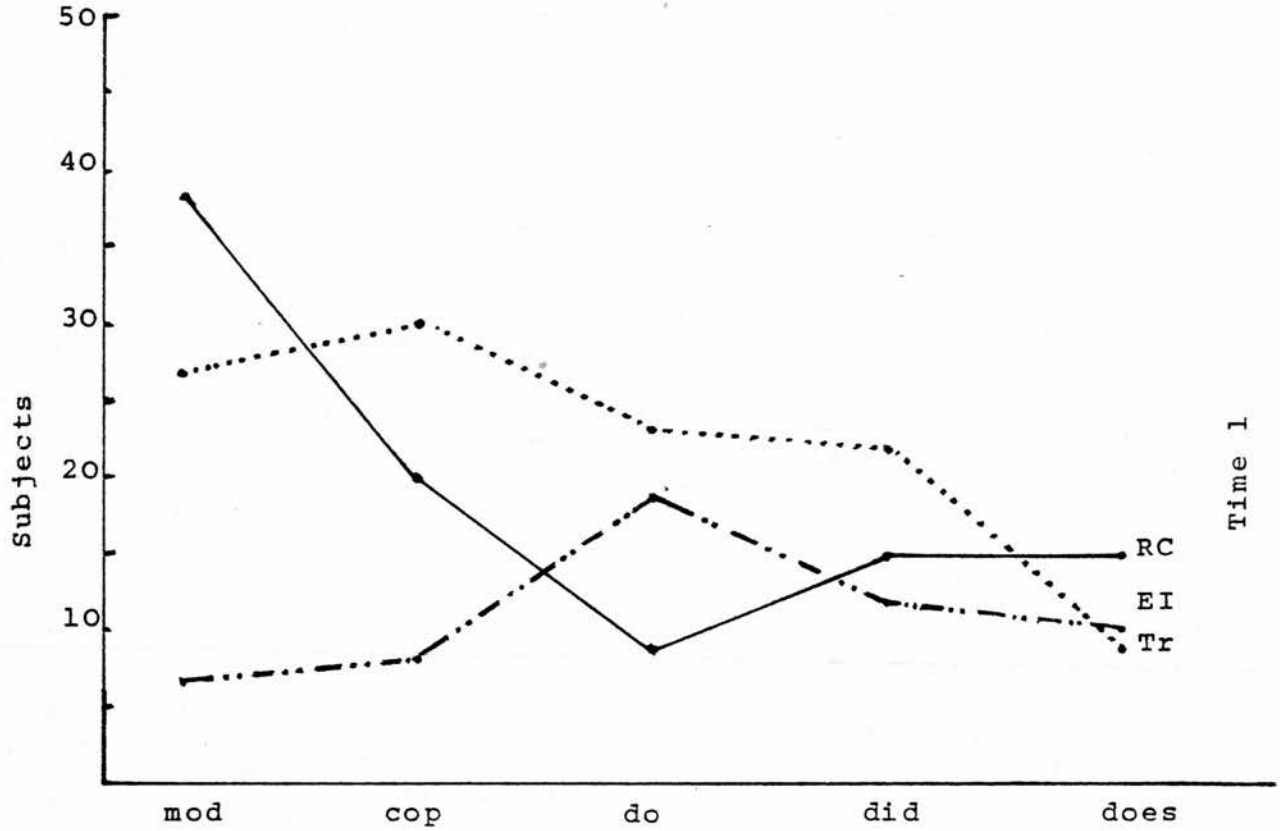


Figure (5.10)

Means of the Percentages of Subjects' Scores on Negation

Figure (5.11) Graphic Display of the Subjects at the Performance Level of 80% and Above

A.



B. Figure (5.11) Graphic Display of the Subjects at the Performance Level of 80% and Above

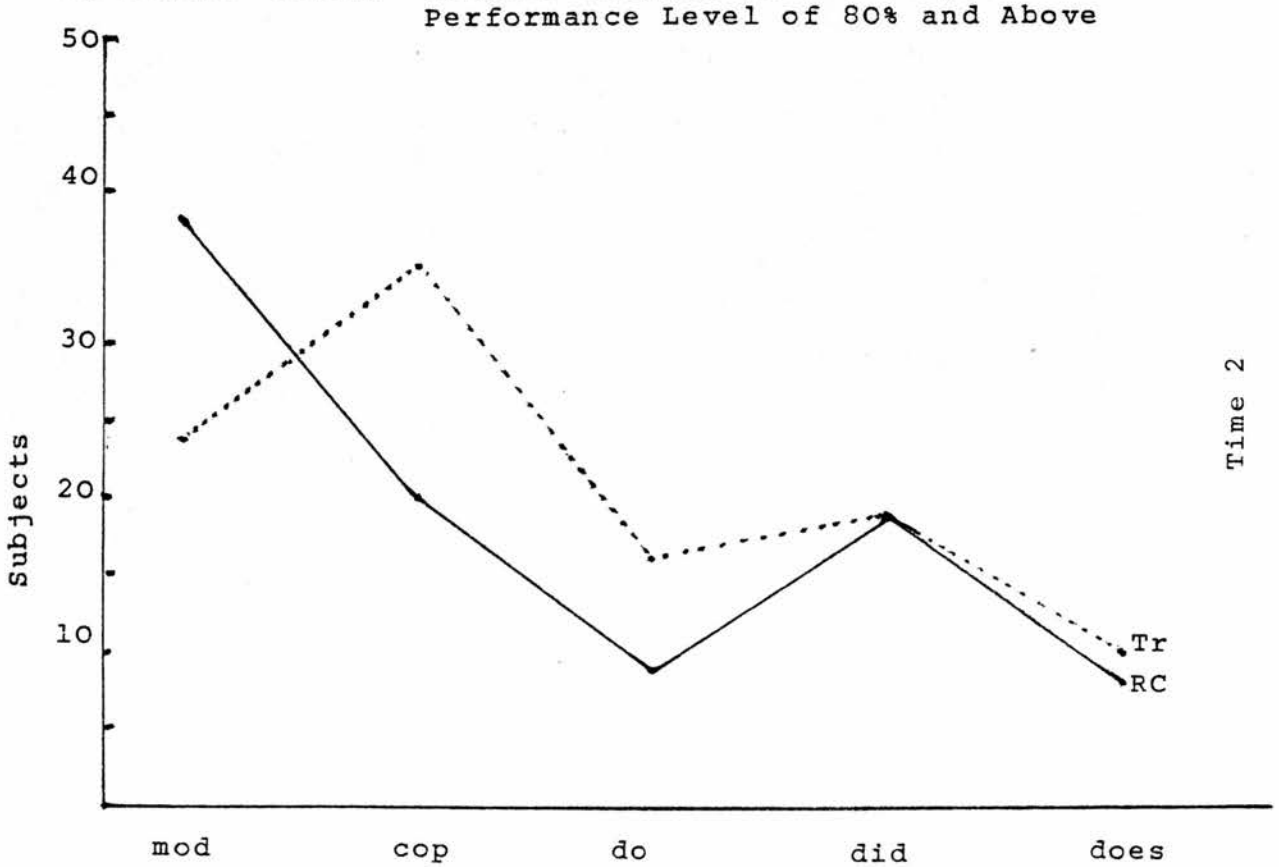


Figure (5.11) Graphic Display of the Subjects at the Performance Level of 80% and Above C.

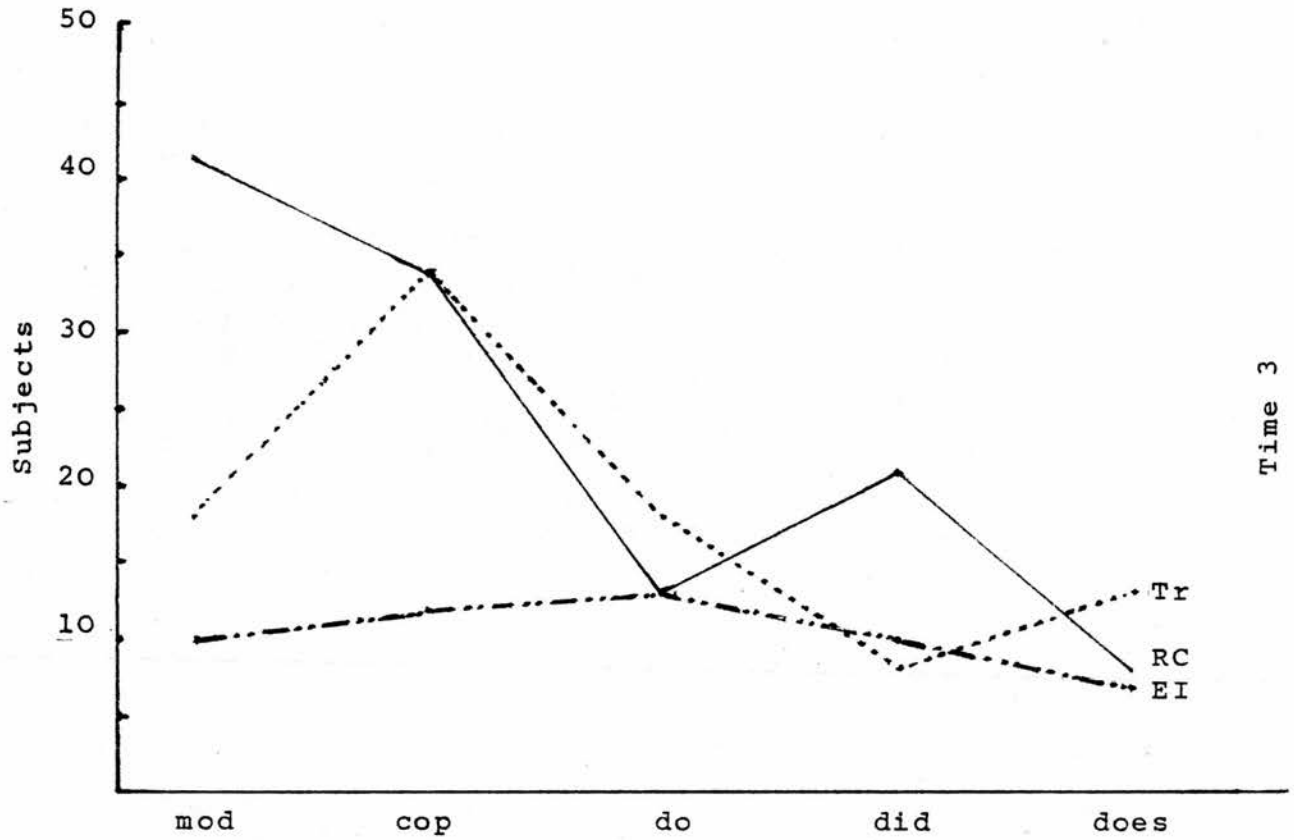
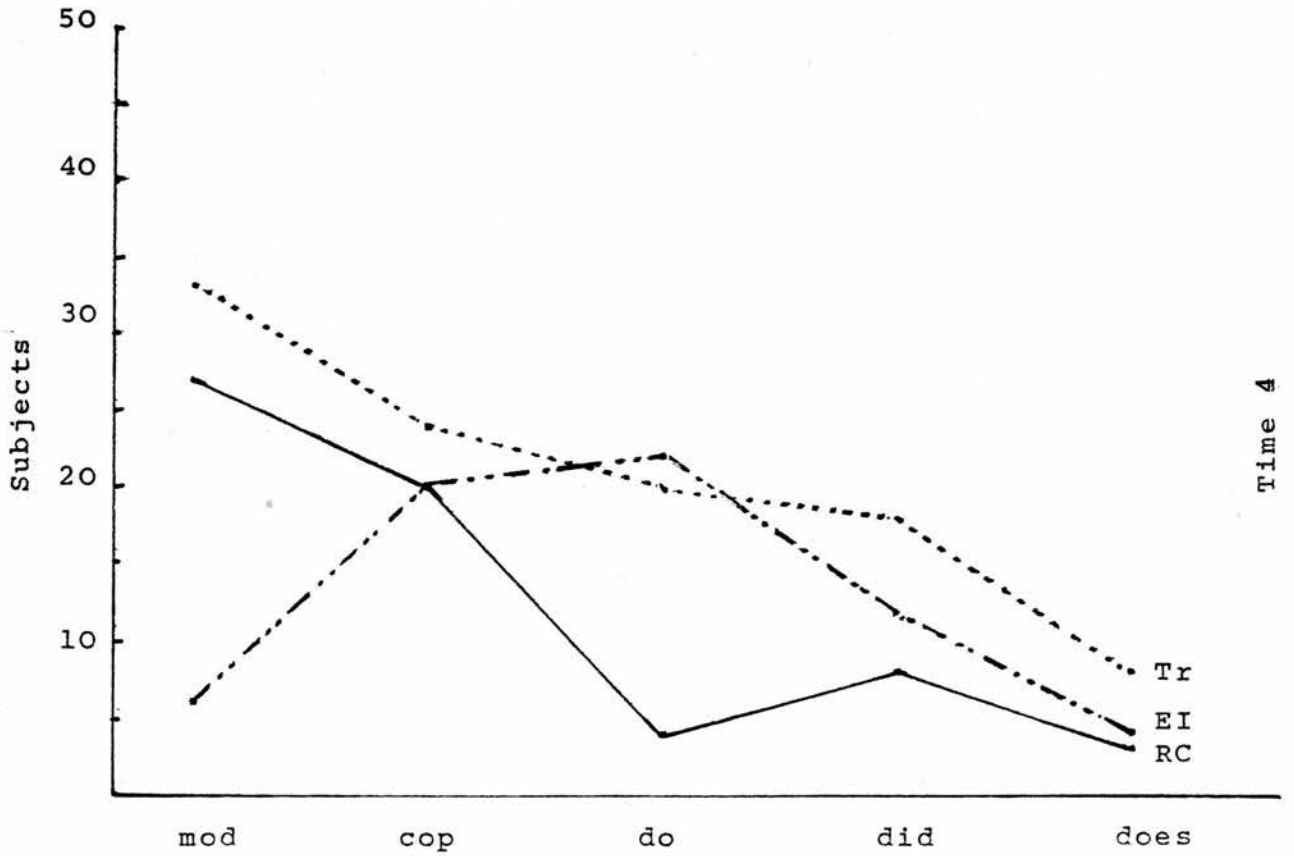


Figure (5.11) Graphic Display of the Subjects at the Performance Level of 80% and Above D.



difference between the two written Tasks on one hand and the EI Task on the other especially regarding the Modals and the Copula. While the Modals and the Copula are placed higher than "do" on the Y axis in both written Tasks, they are placed lower on the EI Task and in reversed order. A possible explanation for the low placement of the Modals in the EI Task is that the subjects are helped with the Modals in the written Tasks through the presence of the auxiliary in the RC Task and its semantic representation in the surface structure of the Arabic sentence in the Tr Task (see 1.5.3.2 above). The reason why they did not perform on the Tr Task as they did on the RC Task is due to the failure of some of them to identify correctly the negator "lan" as "will not". This is illustrated by the high position of the Modals at Time Four of the experiment when the alternative form "sawfa lā" which can be taken to mean literally "will not" was used.

In the sub-structure do-support there seems to be an accuracy/acquisition order of do, did, and does which is predominant in both Tr and EI Tasks but the pattern differs in the RC Task.

The results as displayed by Figure 5.11 actually run counter to the evidence displayed by the graphic representation of means of subjects' scores on each Environment in Figure 5.10. A study of these two figures taken as an example of the subjects' performance reveals a consistent pattern in all three Tasks as far as do-support is concerned. It is interesting to note that most of the backsliding undergone in the RC Task was in the performance on "does" where the mean was exactly halved, then to a less extent on "did".

5.2.2.3 Analysis of Variance

Following the results of the ANOVA test on the Copula (5.2.1.2 above) another ANOVA test was carried out using the data on the sub-structure "do-support" at Times One and Four in all three Tasks in order to find out whether Task and Time are also significant. The results are displayed in Table 5.14A, B, C.

Table 5.14

A. Combined Mean Scores in All Environments

TASK	MEAN AT TIME	
	1	4
Tr	35.031	43.566
RC	24.194	25.659
EI	42.310	52.481

B. Combined Means of Scores at Times 1 and 4

TASK	ENVIRONMENTS		
	don't	didn't	doesn't
Tr	59.872	38.837	19.186
RC	34.430	24.070	16.279
EI	65.930	44.477	31.779

C. Combined Means on All Tasks

TIME	ENVIRONMENTS		
	don't	didn't	doesn't
1	49.736	31.442	20.357
4	57.085	40.147	24.473

A graphic representation of these tables is displayed in Figure (5.12A, B, C) consecutively.

The results as displayed in Figure (5.12) indicate a predominant accuracy/acquisition order of do, did, and does at least at the cross-sectional level.

Figure (5.12) Means of Combined Scores in the Three Environments at Times 1 and 4.

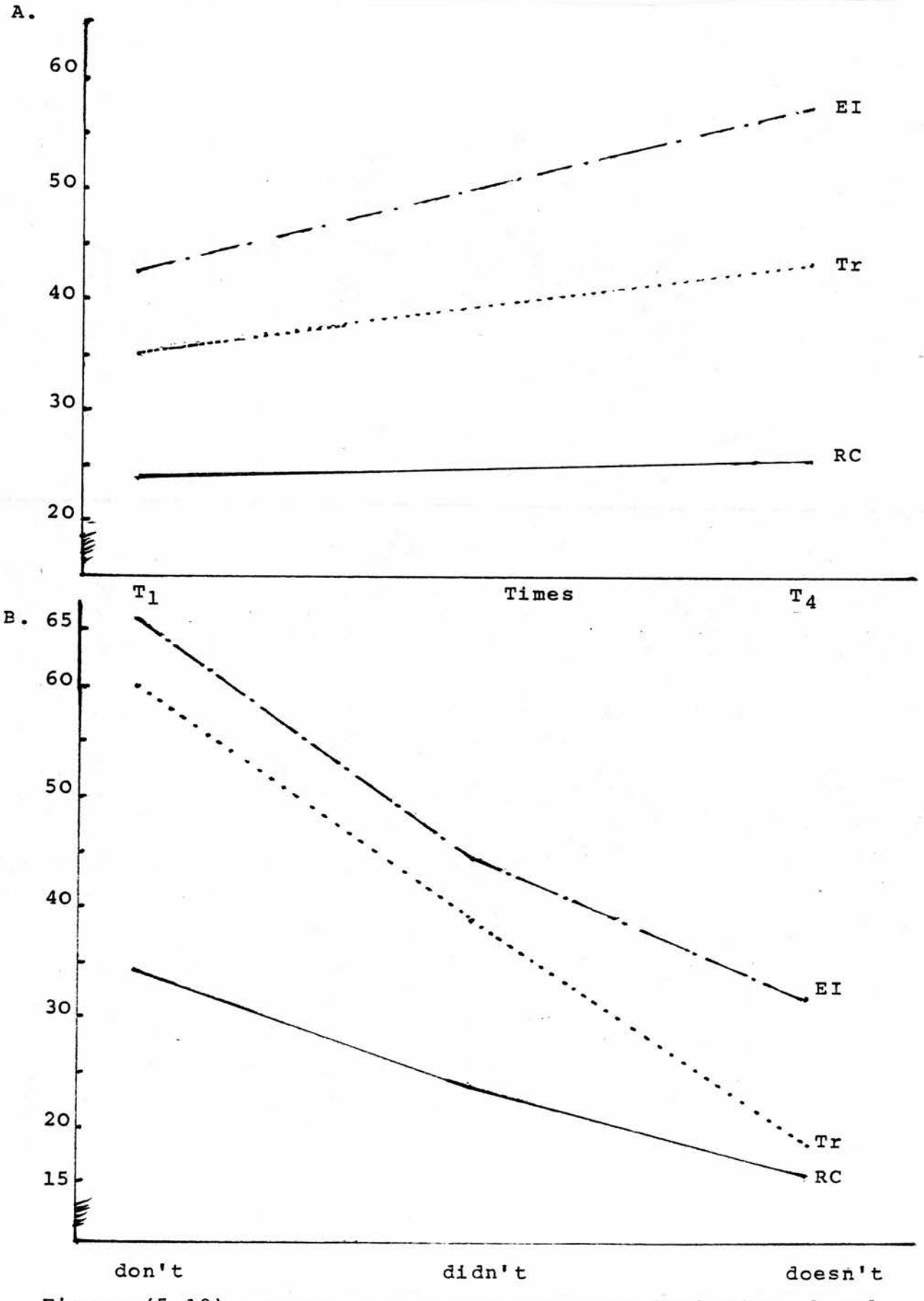
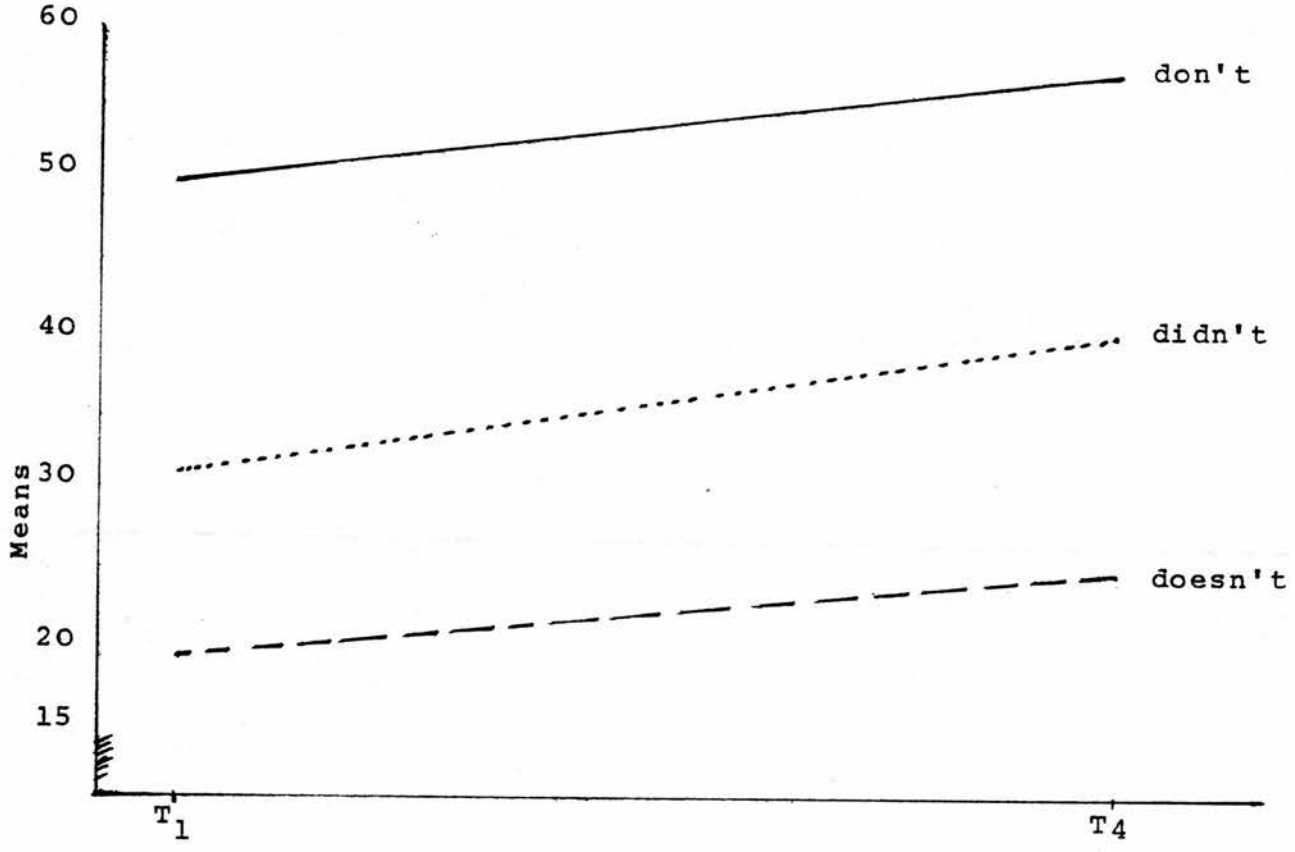


Figure (5.12) Combined means of scores at both Times 1 and 4 in each of the three Environments.

Figure (5.12) Development of the Environments by Time

C.



Tasks proved also to have significant effect on the subjects' performance

$F(2) = 31.72, p<.01$

Environments were also significantly different

$F(2) = 70.12, p<.01$

Time showed that the period of about 14 months separating the two Times of administration played a significant part in the development of the subjects' knowledge of the sub-structure "do-support"

$F(1) = 17.82, p<.01$

Another ANOVA test was carried out on the three Environments using the data of the two written Tasks Tr and RC at Times One, Two, and Three to find out whether there was significant development in the subjects' knowledge of do-support during that period. The results showed no significant difference in the means as far as Time is concerned ($p>.05$). This indicates that the period of one month separating each administration Time from the other was not enough to signal any significant development in this structural area. Looking back at the significant result obtained for the same period using the data on the Copula (5.2.1.2) above it could be said that the Copula develops faster than do-support.

Both Tasks and Environments again proved significantly different. The results were as follows:

Task: $F(1) = 14.23, p<.01$

Environment: $F(2) = 30.06, p<.01$

5.2.2.4 Implicational Analysis

A study of the graphic display of the subjects acquiring negation at the performance level of 80% (Figure 5.11, A-D) rules out the possibility of any scale embracing all the Environ-

ments on all Tasks. So the next step was to remove the unsealable Environments.

Having a significant accuracy/acquisition order, cross-sectionally, of do, did and does, (5.2.2.3 above) we decided to examine the possibility of establishing this order at the individual level and then longitudinally. A study of Figure (5.11, A-D) again rules out the possibility of having a significant scale involving categorical or the assumed acquirer of the structure without having an odd Task out. However this runs counter to the overwhelming evidence in the last section and that of the error-analysis (5.2.2.1 above) firmly establishing an accuracy/acquisition order of do, did, does. Therefore, instead of considering the proportions of subjects with categorical use we decided to consider the percentages with any use at all. So using the 10% margin (5.2.1.3.1 above) a coefficient of reproducibility was calculated for the subjects' scores on each of the Tasks at Time Four of the experiment. In the data in Table 5.15 there are 12 deviations or errors. Using the formula

$$R = 1 - \frac{\text{N of deviations}}{\text{N of rows x N of columns}}$$

$$R = 1 - \frac{12}{3 \times 44}$$

$$R = 0.9091$$

Using the scores on the RC Task (Table 5.16) we find 10 deviations

$$R = 1 - \frac{10}{132}$$

$$R = 0.9242$$

In the data in Table 5.17 there are 10 deviations

$$R = 0.9242$$

The results of the data on the other Times of the experiment

Table 5.15 Negation/Do-Support

Translation Time 4

Learner	Don't	Didn't	Doesn't
8	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
19	0	0	0
14	30	0	0
40	40	80	0
2	50	0	0
13	50	0	0
20	50	40	20
36	50	80	0
34	60	0	0
41	60	0	0
6	60	20	0
18	60	20	0
37	60	40	0
35	60	60	40
4	70	0	20
47	70	80	0
46	70	80	20
42	70	80	60
15	70	100	0
44	70	100	0
38	70	100	20
17	80	0	0
21	80	0	0
24	80	0	0
31	80	0	80
5	80	20	0
1	80	60	0
25	80	80	80
48	80	100	0
7	80	100	20
43	80	100	50
29	80	100	80
26	80	100	100
32	90	40	0
27	90	100	80
3	100	0	0
9	100	0	0
33	100	0	0
28	100	100	80
30	100	100	100
39	100	100	100

Table 5.16 Negation/Do-Support

Recognition and Correction 4

Learner	Don't	Didn't	Doesn't
2	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
18	0	0	0
19	0	0	0
21	0	0	0
24	0	0	0
34	0	0	0
41	0	0	0
1	10	0	0
3	10	0	0
4	10	0	0
13	10	0	0
40	10	0	0
9	40	0	0
37	40	0	0
32	40	0	60
5	50	0	0
14	50	0	0
20	50	0	0
26	50	0	20
17	50	10	0
48	50	60	0
35	60	0	20
15	60	60	0
43	60	60	20
42	60	60	40
47	60	100	20
38	60	100	80
36	70	0	0
29	70	0	20
33	70	60	0
25	70	80	40
44	70	100	0
27	70	100	20
28	70	100	60
46	80	60	20
31	90	0	60
30	100	100	80
39	100	100	100

Table 5.16 Negation/Do-Support

Elicited Imitation Time 4

Learner	Don't	Didn't	Doesn't
11	0	0	0
12	9	0	0
10	9	17	0
8	18	17	0
34	27	0	0
14	27	17	0
31	27	33	17
7	45	83	33
3	55	0	0
9	55	33	17
38	55	33	83
24	55	50	17
2	55	50	50
8	55	100	0
35	55	100	17
1	64	33	17
5	64	33	17
42	64	83	83
20	73	67	0
17	73	67	33
33	73	67	83
40	73	83	17
36	82	17	0
32	82	33	0
29	82	33	33
41	82	50	50
21	82	50	83
47	82	67	17
6	82	67	50
13	82	67	67
19	82	83	17
18	91	50	17
37	91	50	17
4	91	50	33
28	91	50	50
27	91	67	33
46	91	83	0
43	91	83	83
15	100	67	83
30	100	67	100
25	100	83	67
26	100	83	100
48	100	100	50
39	100	100	100

are in Table 5.18. The data for these results are in Tables 17-27 Appendix B.

Table 5.18 Coefficients of Reproducibility of Scales on do-support

TASK	TIME		
	1	2	3
Translation	0.9167	0.8713	0.8988
Recognition and Correction	0.9167	0.9080	0.9181
Elicited Imitation	0.9209	-	0.9272

The above results being all significant except for Tr_2 and marginally Tr_3 indicate that the subjects are unquestionably scalable and that the implicational pattern emerges well-established. The fact that there are more subjects who used the lower Environments on the scalogram, i.e. did and does, than they did the higher Environment, i.e. do, only shows that the acquisition of the three Environments does not proceed at an even rate and that acquisition of one variant may overtake the acquisition of another variant.

5.2.2.4.1 Inter-structural Scaling

The final step in the implicational analysis of the data was an attempt to find out whether there was any connection between the acquisition of the Copula and that of Negation, whether it is possible to predict one's expected performance on one area by his performance on the other. The attempt at including all eight variants in one scalogram failed to produce any significant pattern which indicates that the two areas are independent of each other.

5.2.2.5 Rank-ordering According to Accuracy Order

Spearman Correlation Coefficients were computed using SPSS Subprogram Spearman Correlation following the same procedure outlined in 5.2.1.4 above in order to find out whether the rank order of subjects according to their accuracy remains consistent from one Time of a Task to the other. The results are in Table 5.19, A,B and C.

Table 5.19 Spearman Rank-order Correlation Coefficients.

A. Translation Task

Time	1	2	3	4
1	1.0000 *****	.8085 n = 60 SIG = .001	.7458 n = 60 SIG = .001	.6630 n = 44 SIG = .001
2		1.0000 *****	.7053 n = 60 SIG = .001	.6625 n = 43 SIG = .001
3			1.0000 *****	.6604 n = 41 SIG = .001
4				1.0000 *****

It is clear that the correlation results are all highly significant which indicate a consistency in the rank ordering of the subjects according to accuracy and that the ordering remains generally similar. However, the correlation figures reveal greater similarities in the rank ordering between Times in the RC Task than in the Tr or the EI which indicates more movement by the learners up and down the continuum in these two Tasks than in the RC Task.

Table 5.19 Spearman Rank-order Correlation Coefficients

B. Recognition and Correction Task

Time	1	2	3	4
1	1.0000 *****	.8600 n = 60 SIG = .001	.8992 n = 60 SIG = .001	.7990 n = 44 SIG = .001
2		1.0000 *****	.8925 n = 60 SIG = .001	.8556 n = 43 SIG = .001
3			1.0000 *****	.8314 n = 43 SIG = .001
4				1.0000 *****

Table 5.19 Spearman Rank-order Correlation Coefficients

C. Elicited Imitation Task

Time	1
4	.6733 n = 44 SIG = .001

The results being all highly significant reveals that across Time subjects are rank-ordered in roughly the same pattern. However the much higher coefficients in this area than those of the Copula indicate less movement up and down the continuum than in the Copula or in other words less learning is taking place in this area than in the Copula which is what has been reflected all through the analysis.

5.2.3 Implicational Scales over Time (Level)

In the previous sections it has been demonstrated that Scales i.e., both Guttman and Implicational Scales for Copula Realization and Implicational Scales for the sub-area "do-support" in Negation, could be constructed to account for the individual distribution of subjects on linear implicational continua. It has also been demonstrated that longitudinally, i.e., whenever there is a change in behaviour in any of the subjects, change followed the same order whether up or down the Scales.

However, since our subjects are drawn from a cross-section of Iraqi students who are claimed to represent all levels of proficiency as far as the structures under investigation are concerned and since these subjects represent five levels of learning according to the school system one would expect that since the situation is a foreign language one that placement on the Scales would depend largely on the subject's level in the school system. Moreover, owing to the acknowledged difficulty of carrying out a longitudinal study for the length of time needed to follow the whole learning process, a stand which resulted in the use of cross-sectional or pseudo-longitudinal studies, we have decided to follow the cross-sectional route to get more evidence about the effect of Time on development. In adopting such a route it is assumed

that subjects at Level 2 for example, would perform in a similar way as those of Level 1 would do a year later, and Level 3 subjects' performance would be taken to represent that of Level 1 subjects two years later and so on. Thus at Level 6 it is assumed that the pattern detected would be taken to represent the one followed by one subject or a group of subjects through five years of English.

In order to reach a decision on this matter and since we have equal number of subjects on each of the five levels we decided to use a special ANOVA model called repeated measures design. Repeated measures designs are those that incorporate several observations on the same subject. However, since our subjects consisted of five independent groups, we had to use mixed designs that combine both repeated measures and independent groups within the same study. The data analysis was done by the computer using the BMDP-8V: General Mixed Model Analysis of Variance-Equal Cell Sizes (Dixon and Brown, 1979). The data involved were the subjects' performance on all three Tasks at Time One of the experiment. This left us with one problem namely that Subject 44 had not taken part in EI_1 and since all five cells had to be equal and the program does not handle missing values it was decided to remedy the situation by using the mean score on each environment of the other five subjects of the same group, i.e., Ss 43-48. Thus a new subject was invented to fill in the gap.

In the area of the Copula, the results showed that F for the Levels variable was highly significant in all three Tasks.

Tr_1, F (4) = 12.27, $p < .01$

RC_1, F (4) = 17.30, $p < .01$

EI_1, F (4) = 8.67, $p < .01$

(Data in Appendix B Tables 6, 9, and 12 respectively)

This means that the subjects at different levels performed differently; the increase in performance was a function of Level, i.e., Level 1 Ss would be at the top of the Scale or closer to it than those of the next Level who are in turn closer to the top of the Scales than the following one and so on, while Level 5 Ss would be closer to the bottom of the Scale (target-like performance) than those of any of the other levels. A graphic display of the Level means in each Environment is presented in Figure (5.13 a-c). The almost continuous upward thrust of the graph in all Environments illustrates well the results of the ANOVA though they also display some oscillation in the development of each Environment which might be due to inter-group variation rather than the nature of the acquisition, the pattern of which has been well established.

A similar picture is painted in the area of Negation. Using the data on "do-support" at Time One of the experiment (Appendix B, Tables 17, 20 and 23 respectively) the F-ratio for the Levels variable were also highly significant in all Tasks.

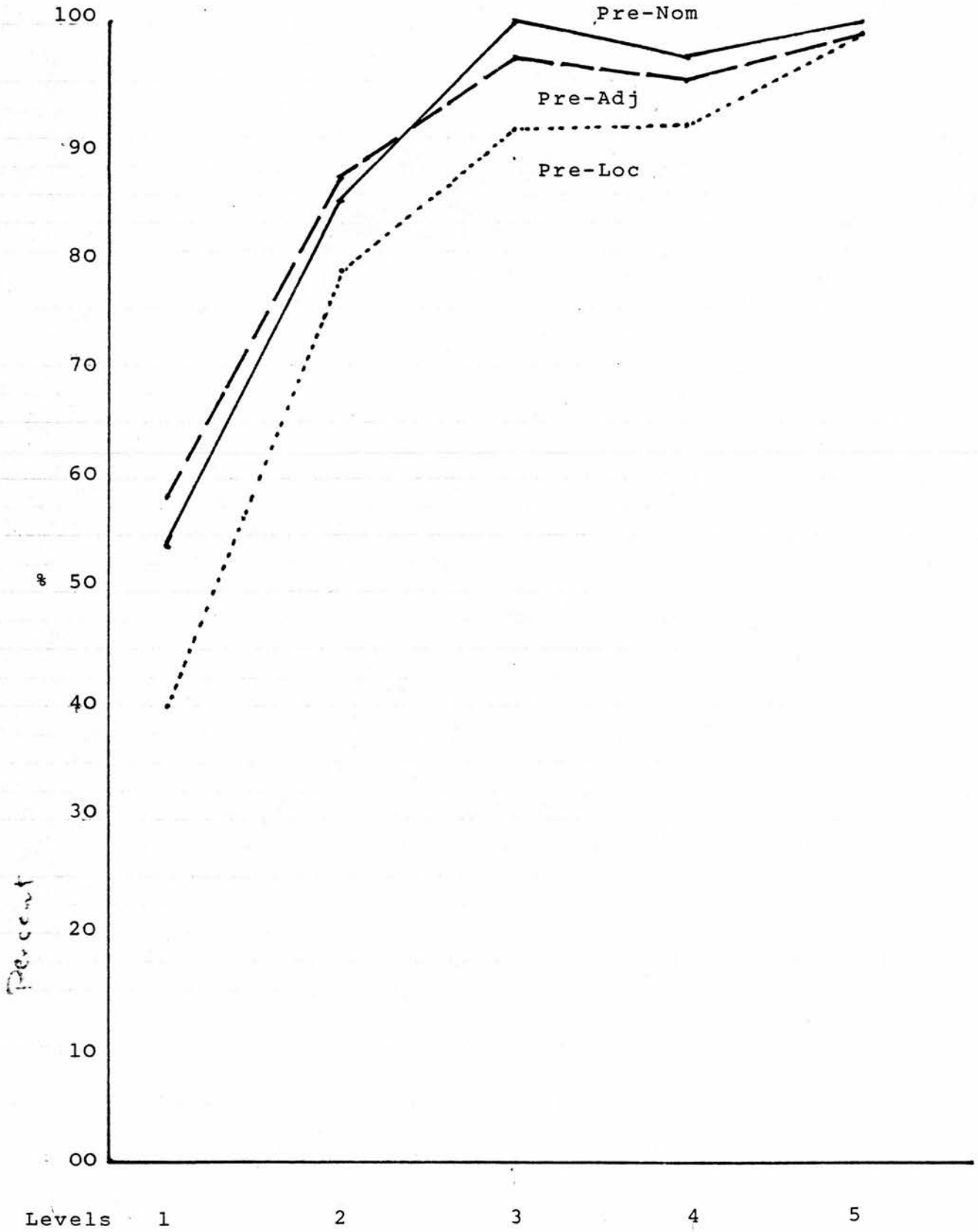


Figure (5.13 a) Performance on the Copula by Levels

Translation Time One

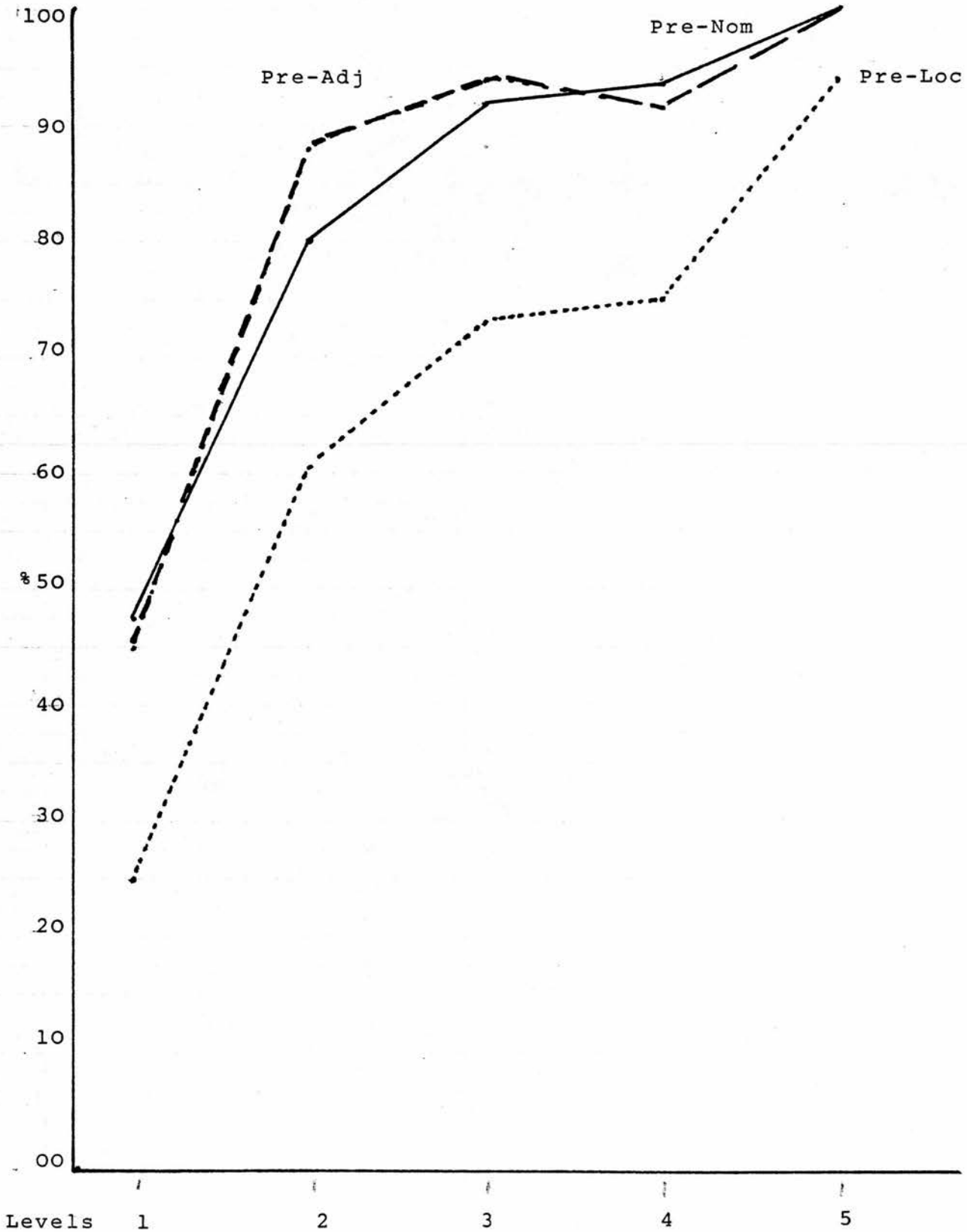


Figure (5.13 b) Performance on the Copula by Levels

Recognition and Correction Time One

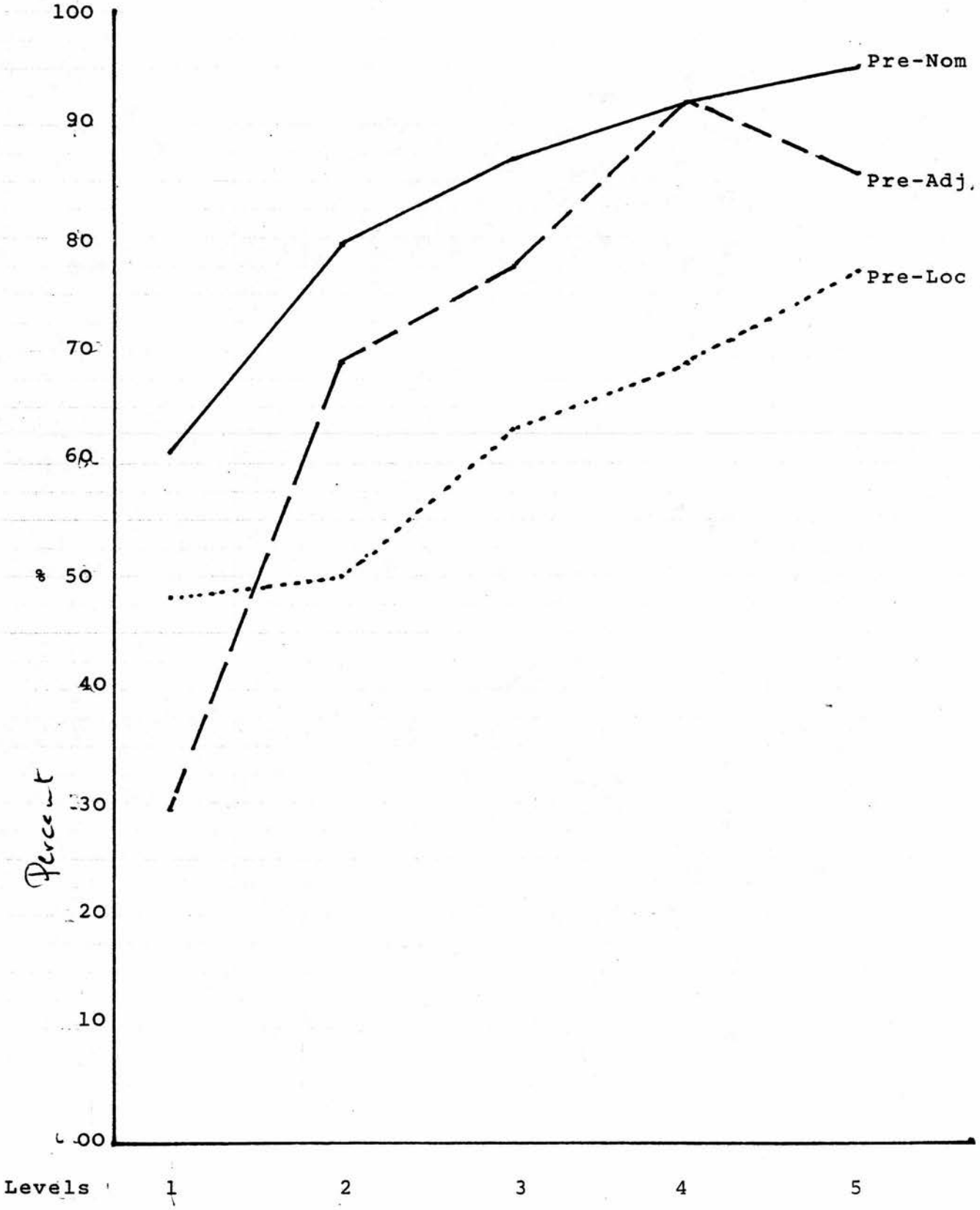


Figure (5.13 c) Performance on the Copula by Levels

Elicited Imitation Time One

Tr_1, F (4) = 8.11, $p < .01$

RC_1, F (4) = 11.13, $p < .01$

EI_1, F (4) = 7.41, $p < .01$

This means that, in the area of do-support too, subjects at different levels performed differently which also implies that the subjects' proximity to target-language performance (also their placement on the Scale) was a function of Time (Level) and that the lower the Level is the further the subject would be from target-language performance, i.e., the bottom of the Scale. The graphic display of the Level means in Figure (5.14 a-c) paints a similar picture to, though quantitively very different from, that of the Copula. Notice the almost continuous upward climb and the oscillation of the Environments. What is interesting is the drop in "don't" at the top level in all three Tasks. This supports the claim before that the subjects' awareness of "doesn't" tends to affect their performance on "don't" and sometimes on both of them as in the EI Task, Figure (15.14c).

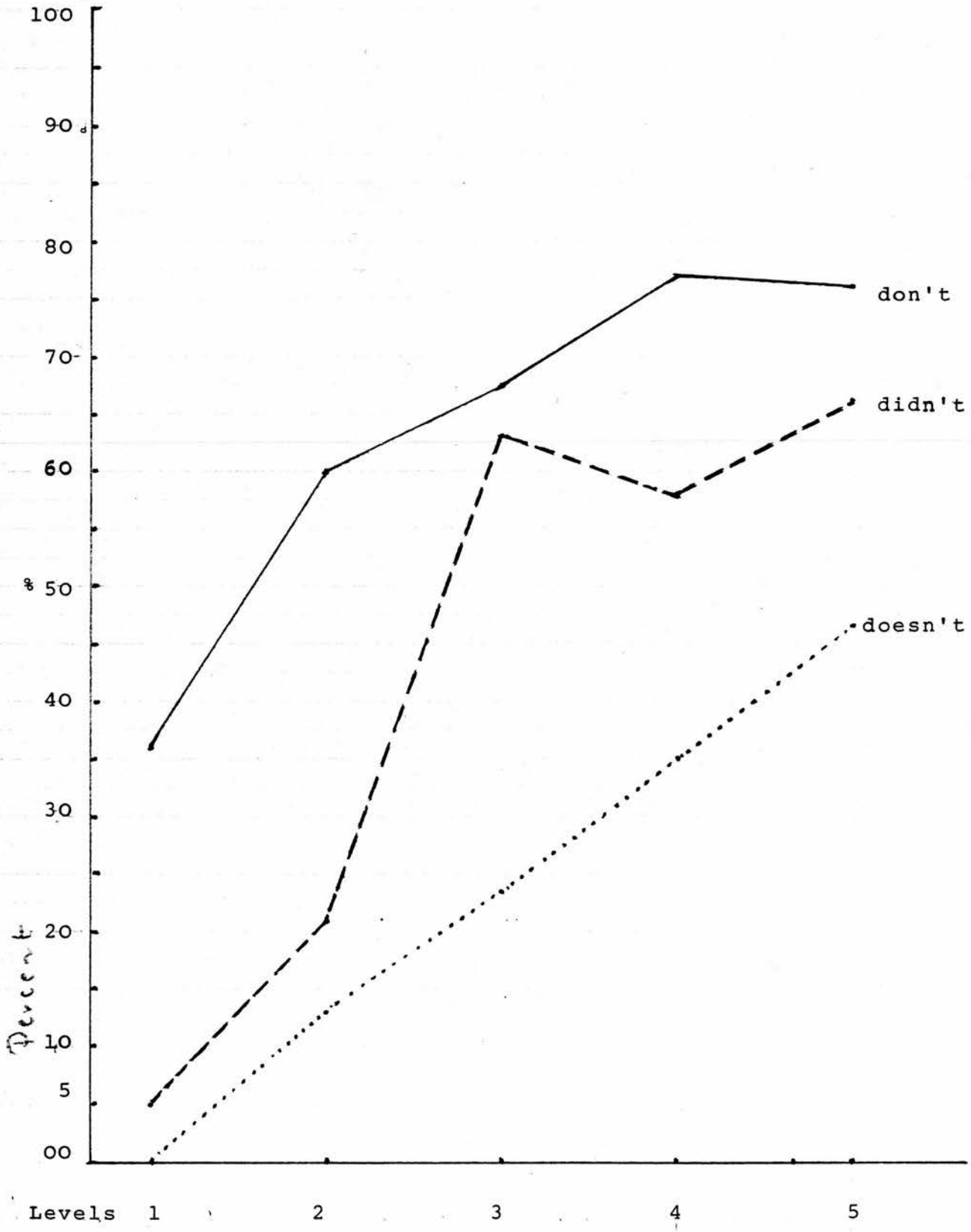


Figure (5.14 a) Performance in Do-support by Levels

Translation Time One

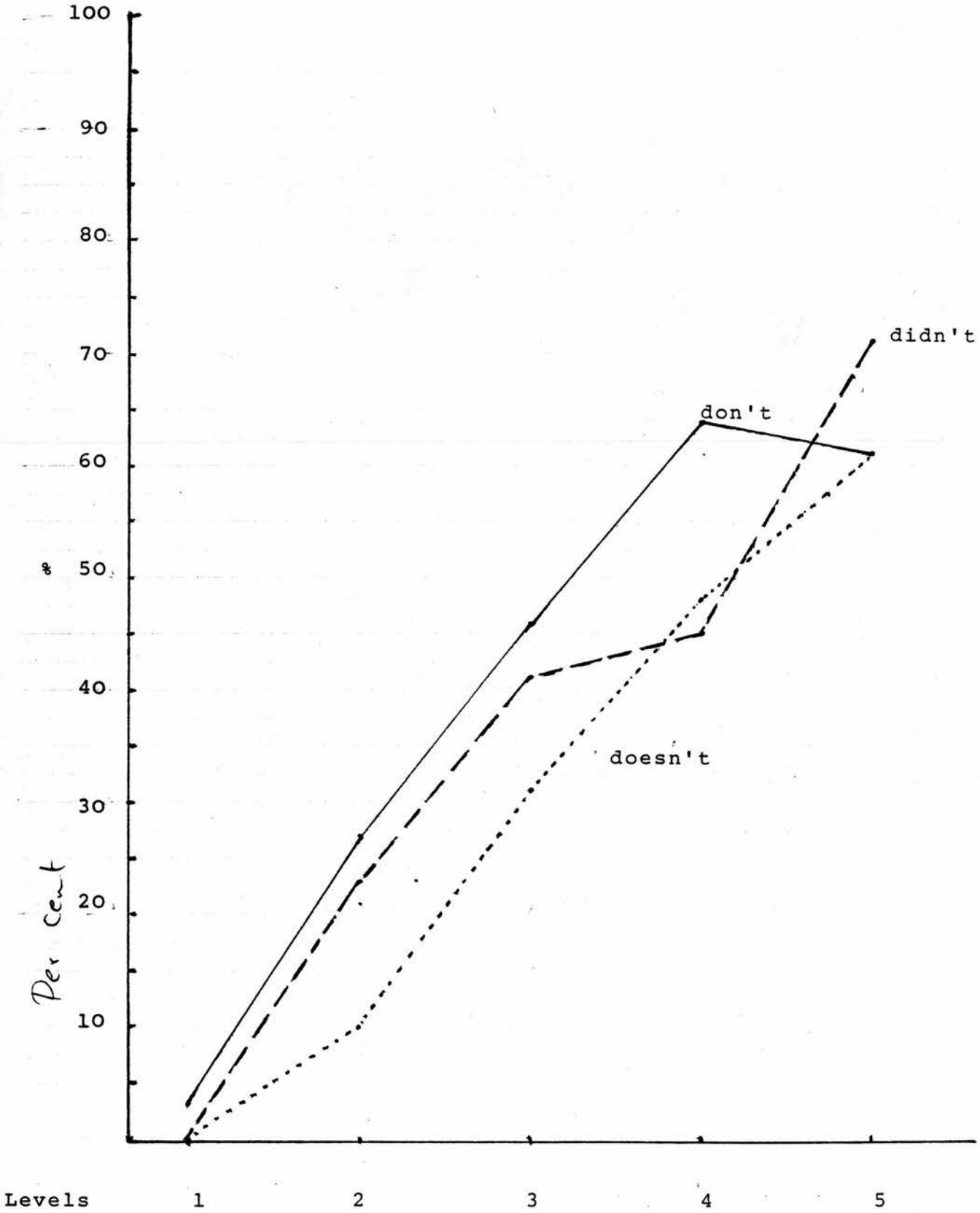


Figure (5.14 b) Performance on Do-support by Levels

Recognition and Correction Time One

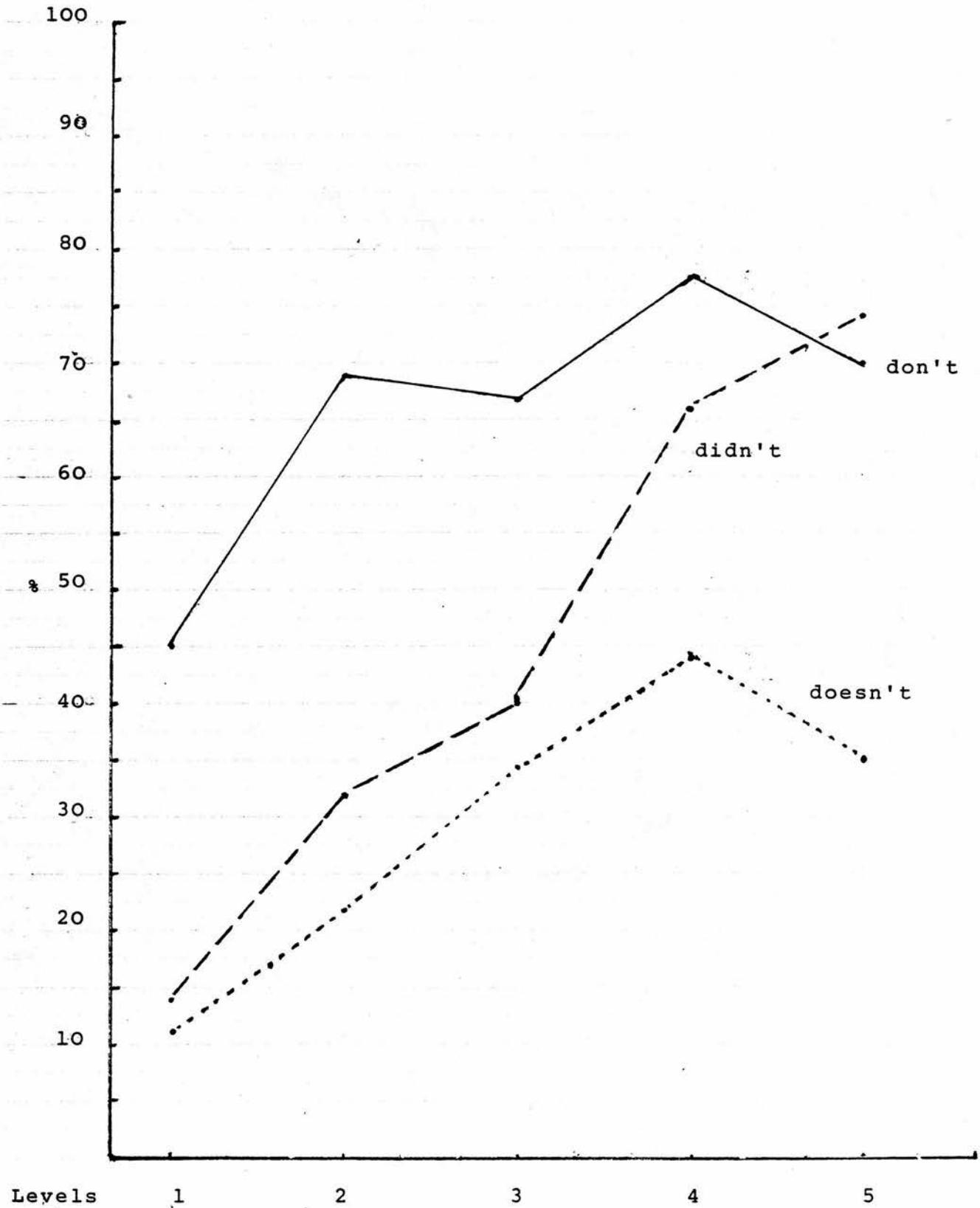


Figure (5.14 c) Performance in Do-Support by Levels

Elicited Imitation Time One

CHAPTER SIX

Discussion of the Results

6.0 Introductory Remarks.

This chapter is going to address itself to the examination of the 3 groups of hypotheses stated above (3.4) in the light of the results of the empirical investigation presented in the previous chapter.

The first section will be dedicated to the examination of Hypotheses (1) which reads:

1.a. The development of the structures is sequential.

1.b. This sequence of development does not totally depend on the conditions under which the learner is exposed to the second language data, i.e. there is no necessary connection between what is taught and what is learned.

1.c. This sequence of development is not specific to a certain language background but can rather be explained in terms of universal language development towards the target norm.

The results in the previous chapter will be discussed and the sequences identified, they will be explained in terms of variable rules and then correlated with the pedagogical sequence of the structural items in the subjects' text-books. These sequences will also be compared with whatever research in the sequential development of these structures available to us whether in first or second language acquisition in natural and formal environments.

In the second section we will test Hypotheses (2) which state :

2.a. Learners move towards the target language along a continuum of increasing complexity

2.b. Learners can be said to be at different points of this continuum according to their proximity to the target

2.c. Learners move up and down this continuum depending on the degree of formality in their style.

The key concept in this section is the interlanguage continuum of development or the developmental continuum. Using the results of the Guttman Scales and Implicational Scales which were employed to determine accuracy/acquisition orders, a development continuum will be built up for each of the two structural areas. This means that the sequence outlined for the sub-structure "do-support" will be fitted in the frame of the entire structural area of negation.

In section three we will revisit the discussion of the subject of the universality of the sequence of development this time involving the whole developmental continuum of negation.

In the interpretation of the results of the empirical investigation concerning variability brought about by the degree of formality of the tasks (6.4) the terminology described in Chapter 2 regarding the "Conscious Grammar", the "Monitor" and types of knowledge will be used.

The fifth section of this chapter will be testing Hypothesis (3) which reads:

3. Development towards the target norm can be explained through a theory of markedness. This hypothesis is broken down into two sub-hypotheses

3.1 Initial stages of interlanguage are characterised by unmarked categories.

3.2 Development towards the target is achieved from unmarked to marked categories.

Marked vs unmarked categories will be first defined and a theory of markedness will be outlined. Then the results will be explained in the light of these definitions.

The sixth and the final part of this chapter will be allotted to the discussion of the learning strategies employed by the subjects in their attempts to internalize the grammar of the target language. Special attention will be paid to the role played by the mother-tongue in the learning process with more evidence provided as to the extent of the employment of mother-tongue structures in the subjects' performance.

6.1 The Sequence of Acquisition.

In this section, we examine the acceptability of the first part of Hypothesis 1 above, which states: "1.a. The development of the structures is sequential"

The results in 5.2 above regarding the first structural area, Copula Realization, point out to a well established accuracy/acquisiton sequence of Pre-Predicate Nominal, Pre-Predicate Adjective and Pre-Locative Prepositional phrase. This means that generally Iraqi students acquire the use of the copula in the first

environment first, while the acquisition of the use of the copula in the third environment comes last in their development. The results of the ANOVA test show that means of subjects' production in each Environment differ significantly between one another ($F(2) = 74.37$, p .01) and the graphic representation shows the direction of this variation to be in the same pattern as outlined above in almost all Tasks at all Times of the experiment (Figure 5.2, a-d; Figure 5.4, a-b). On the individual level the results of Guttman Scales show that the relative chronology of target-like mastery of these three items is in the same sequence, 5.2.1.3 above. Furthermore, Implicational Scales, scales including all variation in the subjects' performance, have established the same order as above. These results leave no doubt as to the sequential nature of the development of the learning of the Copula by our subjects. Thus in the light of such overwhelming evidence it is clear that the hypothesis stated earlier in this section is acceptable as far as the learning of the copula is concerned.

In the second area, Negation, evidence also points out to a sequence though this seems to undergo some variation from task to task. This in our opinion might be mainly due to the inadequacy of the elicitation techniques, which fail to provide equal opportunities or exert equal demand on the subjects' knowledge. However, the results did show that there is a sequence in the learning of the sub-structure "do" which holds in all three tasks. Even though there seemed to be no chronology of target-like

mastery of items, there was still a well-established sequence of development of do, did, does. This means that in learning this sub-structure, the subjects start with "do not" and end with "does not". This had been confirmed by significant coefficients of reproducibility of the implicational scales of almost all the Tasks at all Times of the experiment (cf. 5.2.2.4, Tables 5.14-17) The ANOVA test results show that the subjects' performance produce means that are significantly different ($F(2) = 70.12$, $p < .01$) The change of sequence at the performance level of 80% above seems to indicate that though learners start learning "do" before "did" before "does", the speed of acquisition of these forms seem to vary and that it is apparent that some forms seem to "catch up" with the others during the learning process. A possible explanation for this might be that the use of certain forms is more complicated than others. For example, the subjects' awareness of "does" seems to have its toll on their performance on "do", now finding themselves in the position of having two variants to use for the present tense instead of the one form they used to generalize to all instances of the simple present. Some subjects get all forms mixed up and use any of the forms in free variation while many others confuse the function of the third person singular "s" with that of the plural "s", so they use "does" whenever the subject is a noun in the regular plural form, i.e., ending with an "s". To take S38 as an example of these subjects, we find that she produces these sentences in Tr 3.

e.g. (All verbs are in the present tense)

1. The cat don't eat ___
2. The bakers doesn't sell___
3. We don't buy ___

However, the change of the sequence at the acquisition level, in our opinion, does not invalidate the argument of the existence of such sequence. Therefore we consider the evidence strong enough to render the hypothesis at the beginning of this section acceptable. Perhaps with more adequate elicitation procedures, an overall sequence embracing all variants of negation will be found.

As for the possibility of a sequence embracing both structural areas under investigation, the present research has failed to unearth any sequence of learning or acquisition. This might again be due to the inadequacy of the elicitation procedure or might be due to the fact that the items might be formally too different for an order to exist.

6.1.1 Variable Rules.

All the facts above can be comprised in variable rules (2.3 above) which express what environmental factors are favourable or unfavourable for the application of a certain rule. The first generalization that was made in this investigation concerns the learning of the copula. This may be captured by the following rule:

$$[\text{R1}] \quad \text{Copula} \longrightarrow \langle [\text{cop}] \rangle \Big/ \begin{cases} \alpha \_\_\_\_ \text{ N} \\ \beta \_\_\_\_ \text{ Adj} \\ \gamma \_\_\_\_ \text{ Loc PP} \end{cases}$$

This rule claims that the use of the copula is acquired first before a predicate nominal, then this is followed by

that before a predicate adjective, which is also followed by that before a locative prepositional phrase. In this instance $\alpha > \beta > \omega$ (cf. 5.2.1.3).

With regard to the sub-structure "do-support" the following rule may be used to capture the generalization we have made in the results (cf. 5.2.2.4).

$$[R2] : \text{neg} \longrightarrow \langle [\text{neg}] \rangle \Big/ \begin{cases} \alpha \text{ don't} \\ \beta \text{ didn't} \\ \omega \text{ doesn't} \end{cases}$$

This rule states that in the structural area of negation the variant "don't" is learnt before the variant "didn't", which in turn is learnt before the variant "doesn't". In this instance, don't > didn't > doesn't.

6.1.2 Correlation with the Official Syllabus.

This section deals with the second part of Hypothesis (1) regarding item orderings by Tasks with the official "New English Course for Iraq" and which reads as follows.

1.b. This sequence of development does not totally depend on the conditions under which the learner is exposed to the second language data; i.e. there is no necessary connection between what is taught and what is learned.

This Hypothesis was treated by a Spearman rank order correlation. The formula used was:

$$r_{rho} = 1 - \frac{6 \; d^2}{N(N^2 - 1)}$$

where d = difference between the ranks, and

N = number of items

Owing to the limited number of items in the two sequences above, it was first decided that a rank order of all the items would be tried first. This was done using the combined means of the subjects' performance in all Tasks at Time 1 of the experiment. Table (6.1) displays the rank order of the items according to the means as well as their pedagogical order.

Table (6.1) Rank orders of items at Time 1 of the Experiment

Item	Mean	rank	pedagogical rank	d	d^2
Pre-Nom	79.124	1	1	0	0
Pre-Adj	74.605	2	2	0	0
Modals	65.148	3	8	5	25
Pre-Loc	61.147	4	3	1	1
Cop + neg *	60.827	5	4	1	1
Do + neg + MV	49.736	6	5	1	1
Did + neg + MV	31.442	7	7	0	0
Does + neg + MV	20.357	8	6	2	4

* This environment is actually taught simultaneously with each of the environments above, i.e., a negative copula followed by a predicate nominal is taught immediately after the pre-predicate nominal copula is introduced and so on. However, since we are looking at the structure in its entirety, we have decided to place it where all its sub-structures have been introduced.

The result of the Spearman rank order correlation between the ranks of the items at Time 1 of the experiment and the NECI ranks was as follows:

$$r_{rho} = 1 - \frac{6 \times 32}{8(64-1)}$$

$$r = 1 - \frac{192}{504} = .6190$$

$$r_{rho}\ (8) = +.6190 \quad p > .05$$

The result was not significant even at the 5% level of significance. Therefore the hypothesis above was accepted. This implies that the introduction of these structural items in the New English Course for Iraq is significantly different from our findings in the rank orderings of these items. The argument becomes more powerful if we take the five items of negation separately. In this case the result of the Spearmen rank order correlation is as follows:

$$r_{rho} = 1 - \frac{6 \times 22}{5(25-1)}$$

$$= 1 - \frac{132}{120}$$

$$= -.1000$$

$$r_{rho}(5) = -.1000 \quad p > .05$$

This seems to indicate that, by chance, the three environments of the copula have been introduced in the syllabus in the order that reflects the learners' natural

order. The situation in the area of negation is quite different. The negative correlation here implies that the items are ranked in almost an inverse order. Therefore, it is apparent that the order in which these structural items are introduced in the syllabus does not reflect the order in which the learners process the items. This lends more weight to the hypothesis stated earlier in this section. However, since the rank orderings of some of the above items is the same as the accuracy/acquisition order of these items it can only be said that the grading of some of the items by the writers of the New English Course for Iraq may not necessarily be reflecting the learners' natural order of acquisition.

6.1.3 Comparison of Sequences.

In this section, we are going to compare the sequences of acquisition identified above and compare them with whatever natural sequences identified by other researchers in speakers of languages other than Arabic; thus we will be testing the third part of Hypothesis (1) which reads:

"1.c. This sequence is not specific to a certain language background but can rather be explained in terms of universal language development towards the target norm"

Unfortunately, as far as we know, there hasn't been any research on the sequence of acquisition of the items above in learners of English as a second or foreign language except for Platt's (1979) study of the implicational relationships in the copula realization in Singapore English.

Using data based on recordings of 59 Singaporeans of three different language backgrounds, Malay, Tamil and Chinese (4 varieties), Platt analyses the realization of the copula in four environments:

1. Pre-Adjective
2. Pre-Predicate Nominal
3. Pre-Verb-ing
4. Pre-Locative

Using implicational scale to analyse the data, Platt identifies a sequence of acquisition order of Pre-Locative, Pre-Verb-ing, Pre-Predicate Nominal, Pre-Adjective. Platt uses three levels for implicational ranking, categorical copula realization (+), variable occurrence of the copula in the environment (x), and no occurrence of the copula in the environment (0). He also uses the sign (-) to show that the environment did not occur in the data for the particular speaker. In his calculation of a coefficient of reproducibility, which, incidentally, he wrongly calls "figure of scalability" or "scalability figure" (1976, 1979) which is quite a different thing (2.3.1 above), Platt uses the formula

$$\frac{\text{No. of Symbols - No. of deviations}}{\text{No. of Symbols}} \times 100$$

This formula, though different from the one reported by Andersen (2.3.1 above), produces the same results. In his later paper (1979), Platt regards the instances where the subjects avoid the use of the environment, i.e. the (-) cases, as fitting in the scale whatever it was.

In our opinion, Platt's evidence is not conclusive

for the following considerations,

1. Platt fails to report the number of instances where each of the environments was used by his subjects. This is important since it is known that learners tend to avoid as much as possible, the structures they are unsure of and only use them when they are "certain" that they are "correct". The fact that nearly all cases of non-occurrence are in the two easiest environments and that there is no instance of non-occurrence in the most difficult one may be indicative of such tendency.
2. By not using the actual scores and considering every case between categorical use and no use of the copula as variable, Platt might have missed a great deal of variation. According to him, variable copula insertion varied from 12.5% to 95.5% insertion (1979), but he failed to point out whether there were any deviations in the scaling of variable behaviour. For example, how accurate a statement would be if one considered these two hypothetical subjects as falling into one scale-type subjects.

	Environments			
	1	2	3	4
1.	12.5	25	70	95.5
2.	95.5	70	25	12.5

Though according to Platt's classification, these two subjects do fall into one scale-type, it is clear that performance though not categorical at both ends, indicates movement in two opposite directions. Moreover, evidence

introduced above (5.2.2.4) has revealed that the use of percentages with any use at all may produce sequences that are quite different from those produced using the proportions of subjects with categorical use only.

3. Among the examples provided by Platt (1979) there is one where the copula is negated "not very popular", which means that he had included negation in his study of the copula. This might have played a crucial part in distorting the natural sequence since it is not known whether the realization of the copula and the negative copula are formally related (cf. 2.1 above) or whether the presence of the negative operator is going to affect the realization of the copula in a certain environment or not. As a matter of fact, a study of our subjects' performance on the Tr Task at the first three Times of the experiment has revealed 66 cases where there was variable performance on the negative copula. Only 20 of these cases conformed to the sequence of the non-negated copula followed by the same subjects on the same Task. In the rest of the cases, different sequences were produced.

4. Another factor which might have had some influence on Platt's results is the nature of the category "Locative" which he uses. Even though he gives one example in his earlier (1976) study he does not specify whether what he means by "locative" prepositional phrases only, or any kind of locative,whether a phrase or an adverb. If it is the latter, we are not sure whether the use of copula before words such as "here" or "there" could be

compatible with its use before phrases such as "in the room" or "on the corner". Though grammatically these could be placed under the same category, we are not sure what influence the presence of a preposition might have on the use of the copula by the learners, or whether the learning of the phrases imposes the same "burden" as that of the adverbs.

For the above considerations, even though the sequence reported by Platt is different from the one discovered in this investigation, we do not consider the evidence strong enough to reject the Hypothesis above. This does not mean we claim we are right, but only that sounder evidence is needed to refute or accept a hypothesis. It might be interesting to note that the examples provided by Hanania and Gradman (1977) show that their subject, an Arabic speaking female adult learning English in a natural environment, used the copula in pre-nominal position at periods 1 and 2, but failed to use any copula in pre-adjective or pre-locative positions. Moreover, research in the acquisition of English as a first language has also revealed a natural sequence in the acquisition of the use of the copula very similar to the one arrived at in this investigation (cf. Labov 1969). Furthermore, the evidence provided by de Villiers and de Villiers (1978) in their study of children's performance implicitly shows that locative prepositional phrases in post-copula positions appear much later in the children's production than the nominal or the adjective, though the researchers were not discussing any sequence there.

For further discussion of the Hypothesis stated at the beginning of this section see (6.2.1.2 below).

6.2 The Interlanguage (Developmental) Continua.

This section is going to address itself to the investigation of the continua of development our subjects follow towards attaining target-like proficiency in the structures under investigation. It is first necessary to point out that what we mean by a developmental continuum is the increasing frequency or the introduction of new linguistic forms or the gradual change of the probability of use of particular forms. Thus this section will be dedicated to the testing of Hypothesis (2) above.

6.2.1 The Nature of the Interlanguage Continuum.

In this section we are going to test the first part of Hypothesis (2) which reads:

> "2.a. Learners move towards the target language along a continuum of increasing complexity"

First, we are going to build up the developmental continuum for copula realization, then that for the structural area of negation, since it was shown that even though development in these two structural areas goes on simultaneously, they are not interdependent. Investigation has shown that there is no sequence of development embracing both structural areas. However, a sequence of development was found to be well established in each of the areas. The following sections are going to explain these sequences in terms of interlanguage continua.

6.2.2 Copula Realization.

The results of all the methods of analysis in the previous chapter regarding this structural area have revealed a similar picture. First, it was established that rank

orders of the Environments are structured in similar sequences irrespective of Task or Time. The results of Guttman Scales have established the same sequence at the performance level of 80% and above on all Tasks and at all Times of the experiment. Significant implicational scales were also built using the percentages of any performance, thus nearly all variation in the data was incorporated. A continuum for the development of this structural area can be built using the stages of which are the scale-types making up the implicational scales (cf. Tables 6-13, Appendix B). It is apparent that, on this continuum, the spread of all the subjects have been accounted for. Thus the continuum for copula realization can be said to consist of seven stages.

Stage (1) No use of the copula in any environment.

Stage (2) Variable use of the copula in Pre-Predicate Nominal position only.

Stage (3) Variable use of the copula in Pre-Nom and Pre-Adjective positions.

Stage (4) Variable use of the copula in all environments.

Stage (5) Categorical use of the copula in Pre-Nom only with the use in both other environments still variable.

Stage (6) Categorical use of the copula in Pre-Nom and Pre-Adjective positions. Pre-Loc still variable.

Stage (7) Categorical use of the copula in all three environments.

Figure 6.1 below illustrates the continuum schematically. Subjects are marked on the x-axis. Those with a lower percentage of the target pattern are placed to the left of those with a higher percentage. Thus those at the bottom left-hand corner produce no copula in any of the environments

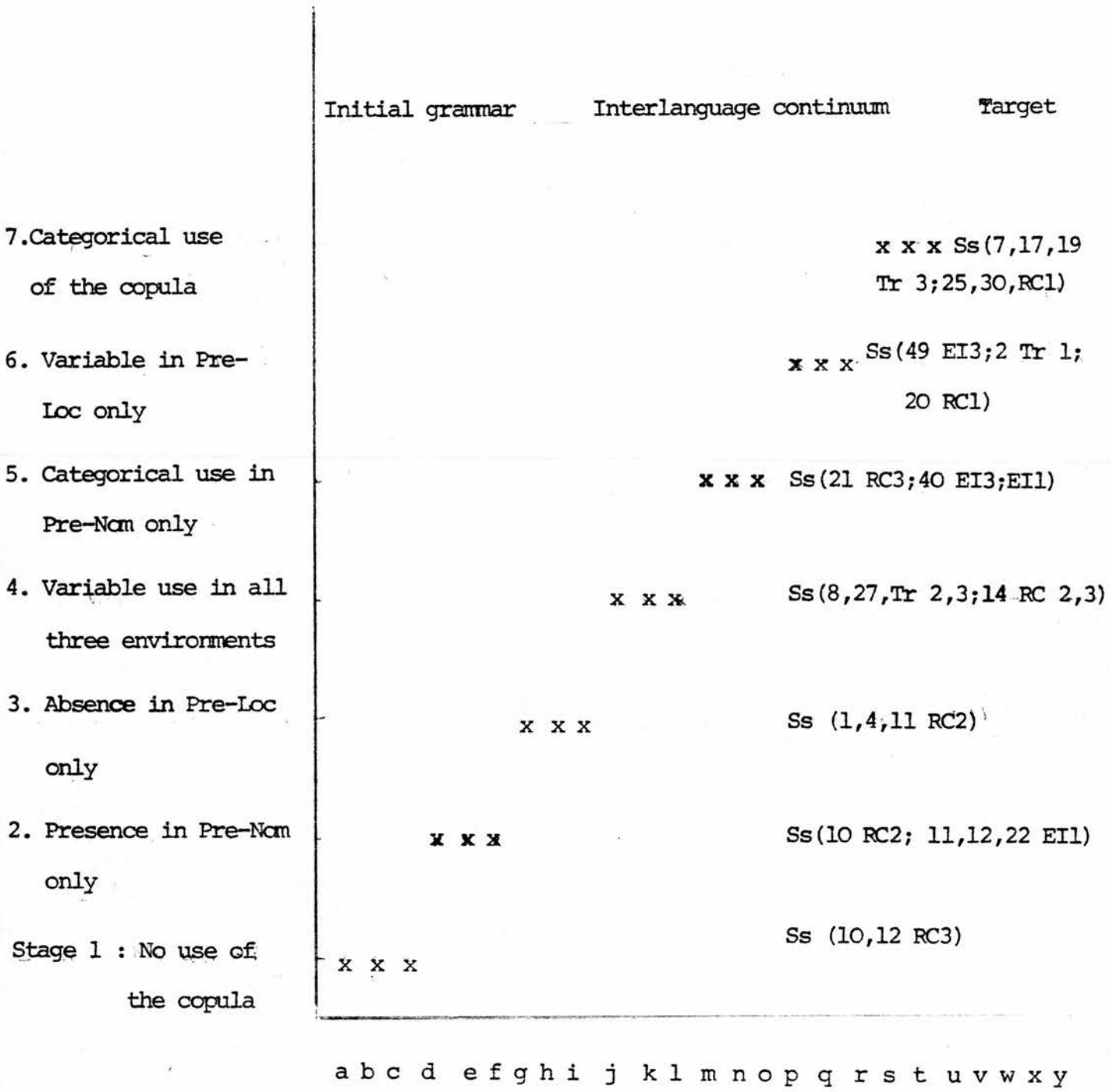


Figure (6.1)

The build up of the interlanguage continuum for syntax of copula realization.

investigated, i.e., they are still at the "basic grammar" stage, while those at the top right-hand corner produce the copula in all environments all the time. The Y-axis should be seen as a description of the structures produced by the subjects including the three environments of the copula. It is accumulative in that a certain point on this axis means that the pattern indicated there and all the patterns under it are found in the output of a subject marked at this point provided that the patterns don't conflict with each other.

Though not all stages are represented on one Task at a certain Time, evidence as to the existence of these stages can be found on the three Tasks at different Times. We have noted that all learners that have changed their behaviour from Time to Time, keep to the same implicational pattern at all times.

e.g.

S's 10, 11 and 12 EI 1-4

S's 10, 11 RC 1, 3, 4

S's 11 Tr 1, 4; 34 EI, 4; 6 Tr 1-4

This means that for a certain learner, it is the case that he is found to have an output at Time 4, for example, which is found in other learners at the previous Times. He will normally be at a point in the continuum closer to the target unless he is a backslider, in which case he will be at a point further away from the target.

Thus, it can be established that a continuum, ranging from an extremely simple grammar to more or less acceptable variants as the continuum approximates the highly complex system of the target language, does exist

in the variety of English produced by Iraqi learners in their learning of the copula. The twenty-two Guttman and Implicational Scales constructed in 5.2.1.3 above, are indicative of this continuum.

Thus, the hypothesis that "learners move towards the target language along a continuum of increasing complexity" can be said to be acceptable at least as far as the realization of the copula is concerned.

6.2.3 Negation.

The results of the implicational analysis considering almost all variation existing in the subjects' performance on all Tasks have established a rank order in the sub-structure "do-support" as follows; first the subjects start with "do not" which is followed by "did not" which in turn is followed by "does not". Significant implicational scales have been constructed for almost all Times of the experiment. The eleven Implicational Scales (5.2.2.4) are indicative of this sequence.

ANOVA tests carried out on the results have shown that the mean differences among the items were statistically significant with the differences going the same way as the rank order.

This sequence takes into consideration target-like performance of the subjects only. However, the analysis of the subjects' performance on negation in general, i.e., analysis of the whole subjects' performance whether target-like or not, reveals a more comprehensive continuum of development, consisting of the following stages: [for a break down of the spread of the subjects on the continuum

and the variants on each stage, cf. Tables 17-24, Appendix B]

Stage 1.

a. categorical use of pre-verbal and pre-phrasal "no".

b. the emergence of "not" to replace "no" in both pre-verbal and pre-phrasal positions. In some cases "not" replaces "no" categorically before any third variant is added to the interlanguage grammar of the learner, while in other cases both negative morphemes co-exist through one or more stages.

e.g. S10 Tr 1

1. No swim people on the winter.
2. Must no sleep late.
3. No chair on the garden.
4. No the my brother teacher.

S11 Tr 1

5. The pupil no study.
6. Some people no drink tea.
7. I am no lazy.

b. S11 Tr 2

1. The pupil no study.
2. I am no want ___
3. I am not take ___
4. The book no clean.

S12 Tr 1

5. Not drink some people tea.
6. I not play football.
7. I not can a run.
10. No like apples.

Stage 2. EITHER

a. the use of verb "to be" as an auxiliary for negating main verbs.

OR b. the use of unanalyzed "don't" as a morpheme for negation functioning in exactly the same way as any of the morphemes above. This is sometimes generalized to all situations.

This stage marks a very sharp drop in the use of "no" and also marks the beginnings of the use of standard "modals" and "cop + neg".

e.g.

S14 Tr 1

1. Don't speak in the classroom.
2. Don't can woman is go.
3. Not chair in garden.

S9 Tr 1

4. Not sit here.
5. Some people don't drink tea.
6. My friends are don't go to the zoo yesterday.
7. The teacher he not come to the school.
8. Don't chair in the garden.
9. I don't were in the classroom.
10. Must don't sleep late.
11. I can't ruining.

S8 Tr 1

12. The pupil is no swim.
13. You no drink some people tea.
14. I am not help my brother yesterday.
15. The boy is no pupil.

16. Not speak in the classroom.

17. That woman will no buy ___

18. I am no in the museum.

Stage 3.

The use of both forms in Stage 2 above in what mostly seems to be free variation though "don't" is sometimes restricted to present-tense forms only, both singular and plural while the past tense is realized through the use of "not + MV", "cop(aux) + neg + MV" or any other auxiliary that might come to the subjects' minds such as "have" or the modal "will". "No" disappears at this stage and "not" also declines considerably. Some isolated cases of unanalyzed "doesn't".

e.g.

S17 Tr 1

1. He don't visit ___

2. I don't play ___

3. The teacher is not come to school yesterday.

4. My friends are not going ___

5. The woman is not sell ___

6. We don't visited

S34 Tr 1

7. The farmers not work ___

8. We don't go to school on Friday.

9. I wasn't help my father yesterday.

10. My friends weren't go to school yesterday.

Stage 4.

The introduction of unanalyzed "didn't" as a negative morpheme which is also sometimes, though not often, generalized to most instances of negation except the imperative. "Not" almost disappears except for some very few uses especially in the Tr. Task. There are some instances where "did" is analyzed, i.e., used in target-like function. "Don't" remains over-whelmingly unanalyzed. The use of the modals and negated copula remain variable though there is an increasing number of cases of categorical target-like use.

S13 Tr 1 RC1

1. Some people don't drink tea.
2. I don't help my brother yesterday.
3. He didn't visit his friend everyday.
4. The man didn't work tomorrow.
5. They must don't sleep late.
6. The workers didn't late.
7. The boy not pupil.
8. I cannot run.
9. The woman not sell oranges.
10. I will not go tomorrow.

Stage 5.

Introduction of unanalysed "doesn't" which is some-times generalized to many situations. "Not" disappears in the Tr. Task but persists in the other two Tasks though relatively less than in the preceding stages. There are very few cases where the use of the modals and the copula is still variable . Sometimes all three forms of "do"

are confused, though there are some cases where "does" is used in its analysed function.

e.g.

S57 Tr 1 RC1

1. The people are not swimming in winter.
2. Some people don't drink tea.
3. The boy does not go tomorrow.
4. We do not visit you tomorrow.
5. The chair didn't in the garden.
6. I did not help my brother yesterday.
7. He does not like football.
8. The house is not big.
9. The girl cannot read well.
10. I will not go tomorrow.
11. My father don't a farmer.

Stage 6.

Target-like use of negation. At this stage, subjects use target-like variants correctly a hundred per cent with no avoidance or any other risk-avoiding strategy.

e.g.

S58 all Tasks Times 1-3.

S39 RC and Tr 1-4, EI 3 and 4.

These stages are based on the subjects' performance on the Tr Task. Owing to the nature of the RC Task, there is no evidence of the first two stages on this task, therefore the first three stages are collapsed into one stage. Thus Stage 3 on the Tr Task is actually Stage 1 on the RC Task. As for the EI Task, it can be said that subjects at Stage 1 of the Tr Task are still at the "mute"

stage of their oral development. At Time 1 of this task S12 for example, produced only one negative structure with "don't" in the imperative mode when it was at the beginning of the sentence, while Ss 10 and 11 produced three propositions each out of the 45 they were supposed to imitate. There is evidence of Stage 2 above at Time 4 of the Task in Ss 10 and 11's performance, though the former could well be said to be at Stage 1, since the only thing separating him from it is the imitation of one proposition with "don't" in the imperative mode and in initial position. However, the imitation of target-like structures, though very few, which the subject had failed to produce on other tasks shows that ability to comprehend precedes that to produce (see below).

Figure 6.2 is a schematic illustration of the continuum of English negation in the variety produced by Iraqi learners based on the subjects' production on the Tr Task at Time 1 of the experiment. As in Figure 6.1, subjects in this figure are marked on the x-axis. Those with less variants of the target pattern are placed to the left of those with more variants. The Y-axis should be seen as a description of variants of negation produced by the subjects. It is accumulative in that a certain point on this axis means that the pattern indicated there and all patterns under it are found in the output of a subject marked at this point provided that the patterns don't conflict with each other. On this figure, the number of subjects at each stage is given just beside the asterisks.

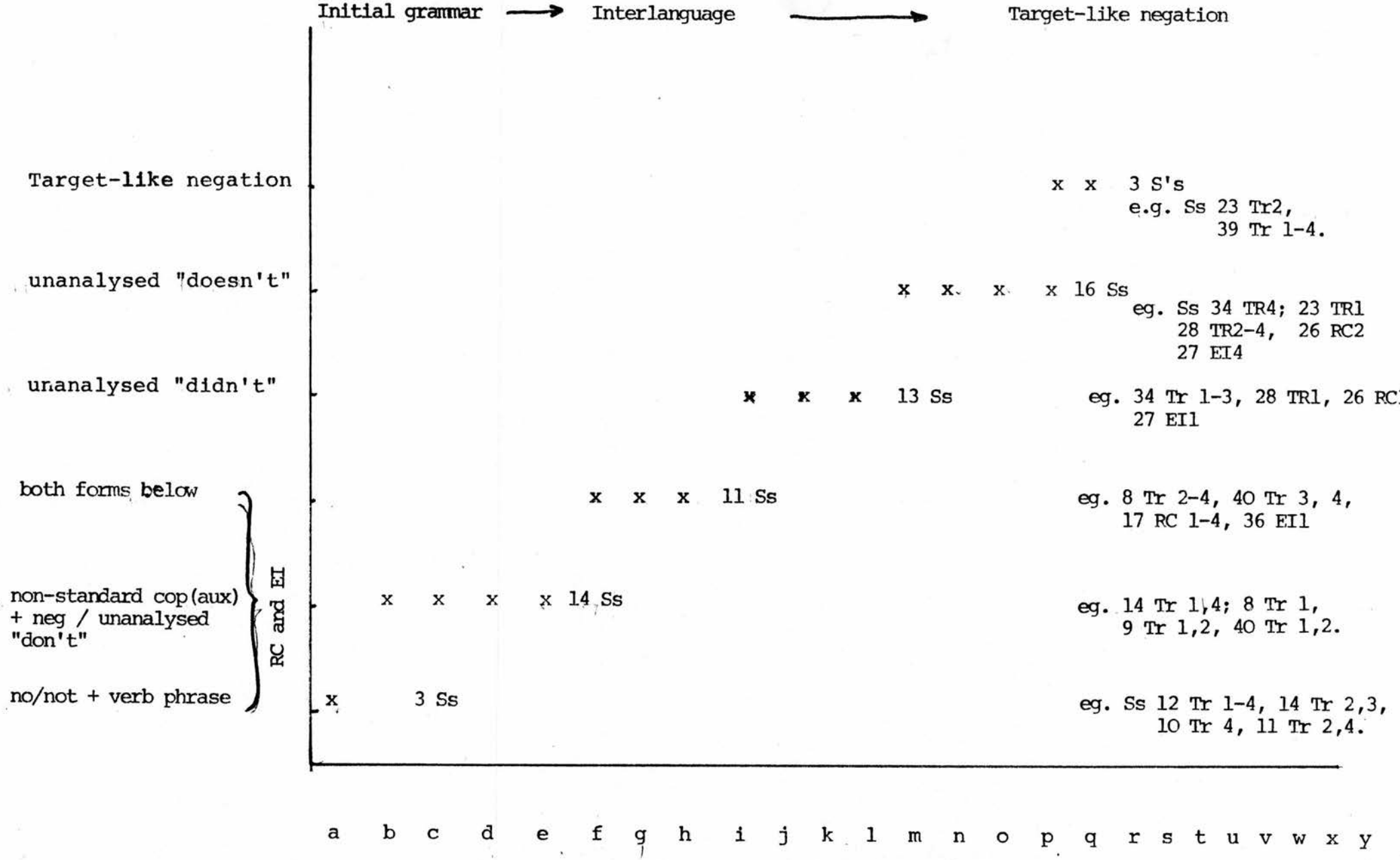


Figure (6.2) The build up of the interlanguage continuum for syntax of negation.

Thus in this continuum, subjects at the bottom left-hand corner produce no target-like variants whatsoever, i.e., they are still at the basic grammar stage, and the further up you go the more you approximate the target language, i.e., the more target-like forms appear in the subjects' performance though not necessarily in their target-like function. Subjects, at the top right-hand corner produce target-like negation all the time; in other words they have attained target-like mastery of this structure.

As the illustration and Tables (6-13 Appendix B) shows, very few subjects ever attain target-like mastery of negation at the end of their study of English (in the illustration above only 3 of the 60 subjects do so).

Tables (6-13, Appendix B) show that the spread of all the subjects has been accounted for and that except for the loss of the two initial stages in the RC Task due to the nature of this Task, the development is similarly patterned irrespective of Task or Time. The continuum for this development ranges from highly deviant but simple interlanguage forms where only one negative operator is used for all situations of negation, to acceptable variants as the continuum approximates the target language. During this approximation process the continuum increases in complexity, through the incorporation of more and more variants, and through the subjects' increasing awareness of the target language system, until his interlanguage takes the form of the highly complex system of the target. Thus the hypothesis accepted for the area of copula realization is rendered acceptable for this structural area too.

The extreme simplicity of the subjects' initial grammar rules out the possibility that the starting point of this continuum is the highly complex system of the mother tongue. Evidence supporting this argument lies also in the use of one negative operator in all positions in spite of the fact that the subjects' mother tongue, Arabic, has, as far as this investigation is concerned, five different negative morphemes depending on the tense and type of the verb used (cf. 1.5.3.2 below). More evidence is provided by the pidgin-like structural properties of the subjects' interlanguage at the earliest stages such as the reduction of determiners and tense.

e.g.

S11

1. No help girl.
2. No wash face.
3. In classroom no speak.
4. Some people no drink tea ("Some" was provided in the lexicon)
5. Woman nurse.

S10

6. He clean.
7. Mans strong.
8. I under tree.
9. No wash pupil face yesterday.

S12

10. No sell woman oranges.
11. I not study.
12. He not house big.

Still more evidence is provided by learners of English as a second language who speak languages other than

continua was the actual distribution of subjects at each point in time in relation to the overall linear pattern. The results of the ANOVA in 5.2.3 above have also revealed that Time (Level) was found to be a significant determinant of variability. What remained to be examined is whether there is a progression along the continuum according to the length of time that students have been studying English. Since it was assumed then that the cross-sectional slice is taken to represent the route of learning that would be followed by a learner as a group of learners through the period represented by the levels studied i.e., five years of English. For this purpose it was necessary to compare various levels and see to what extent the groups move along the continuum.

For this purpose the subjects were ranked according to classes. These ranks (Levels) from 1 to 5 were correlated with the stage the subjects occupied on the continuum of each subject. A Spearman r_{rho} was calculated using the formula (cf. 6.1.2 above).

$$r_{rho} = 1 \quad \frac{6 \; d^2}{N(N^2-1)}$$

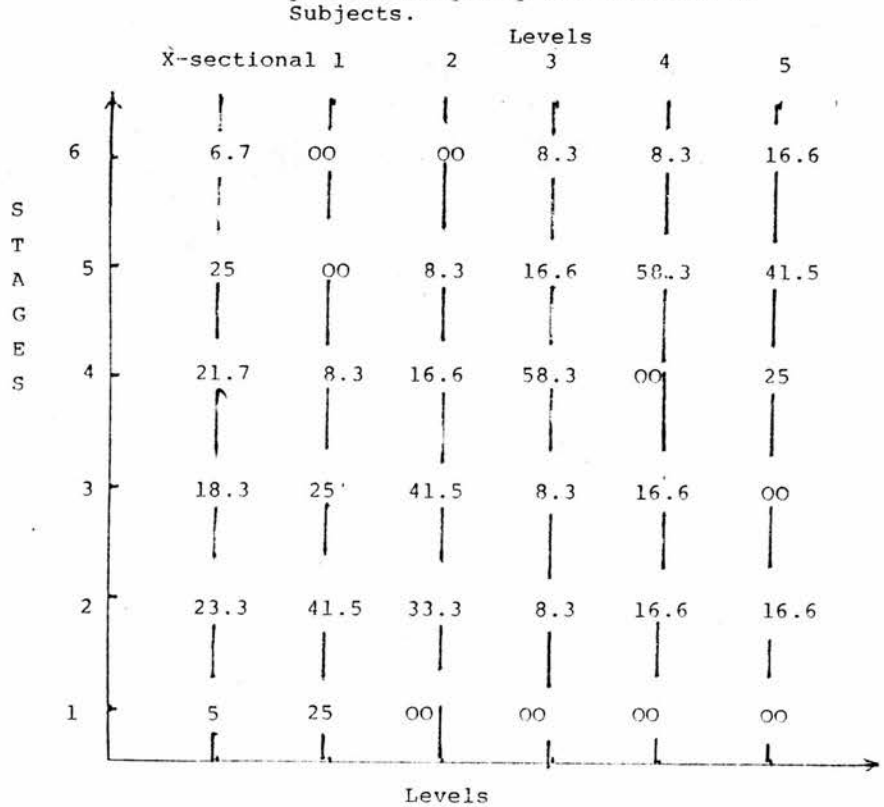
(cf. Appendix B, Tables 36-41 for details of ranks, d, and d^2 for both areas under investigation).

Using Time One of the experiment the results were as follows:

	Negation	Copula
Trl	.9967	.9825
RCl	.9956	.9896
EIl	.9938	.9941

These almost perfect correlation coefficients clearly show that placement on the continua depends to a great extent on the Level of the subject in the school system. A detailed description of one of the Continua might add support to these results and indicate the effectiveness of the method of data analysis. If we take the Continuum for Negation in Trl whose data are given in Appendix B Table No. 25, and express the data in terms of related frequency percentages we could obtain the picture depicted in Figure 6.3 below.

Figure (6.3) Continuum for Negation Trl= Relative percent Frequency Distribution of Subjects.



The picture in Figure 6.3 which is true for all other continua is self explanatory. Notice that at Level 1

25% are at Stage One of the continuum and none of them has reached Stage Five. At Level 2 the subjects have moved a stage further, while there are no subjects at Stage One of the continuum 8.3% of the subjects have reached Stage Five but still no one has reached the final stage of the continuum. Subjects only start reaching the final Stage at Level 3, but while the number of subjects reaching the final stage is the same at Levels 3 and 4 progress at the latter is quite apparent in that the majority of subjects are found in the last two upper Stages. What we find difficult to explain, except that the subjects involved are not up to the usual standards, is the comparatively high figures of subjects at Stage 2 in Levels 4 and 5 and at Stage 3 in Level 4. The evidence lends support to the findings above namely that the distribution of subjects on the interlanguage continua is a function of Time.

6.3 Comparison of Stages of Development.

Negation is the structural area that has received more attention, perhaps, than any other structural area. In both L_1 and L_2 acquisition, there is a vast body of literature that deals with the emergence of negative operators in the speech of language learners (cf. 2.5 above). In this section we are going to compare the findings of this investigation concerning the stages of development with those of learners of English as a first and second language with different language backgrounds as well as the stages found to be followed by speakers of Arabic in a natural learning situation. This is done for a two-fold objective as outlined in 1.4 above.

1. to determine whether the learning of English as a foreign language by Arabic-speaking learners is systematic in a way similar to the linguistic development of naturalistic second language learners, in particular, whether there are any developmental sequence of the type observed in first and naturalistic second language acquisition.

2. to find out whether there are any structural similarities between naturalistic learners' performance and performance of foreign language learners. In other words, to find out whether there is any evidence to suggest that the same or similar processes govern both naturalistic and tutored second language acquisition.

Evidence supporting (1) above will lead to the acceptance of hypothesis 1.c. which states that the "sequence of development is not specific to a certain language background, but can rather be explained in terms of universal language development towards the target norm". While evidence of 2 above will lend more support to the hypothesis already accepted above which states that "this sequence of development does not totally depend on conditions on which the learner is exposed to in the second language data ..."

6.3.1 Comparison with Stages of L1 and L2 Learners.

Table (6.1) below summarises the stages of the development of negation in children learning English as a first language and in learners of English as a second language from four different language backgrounds, Norwegian, Japanese, German and Spanish. We are not going to discuss the similarities between these stages here because the matter has been very extensively discussed and quite often (cf. 2.5 above and also Felix 1981, from whom the table was adapted). What we are interested in here is a comparison of these stages with the stages composing the developmental continuum outlined in 6.2.1.2 above.

It is quite apparent that Stage 1 in the table corresponds to our Stage 1.a since the negative operator used is solely "no" and it is placed external to the remaining sentence and in sentence initial position. The fact that

TABLE (6.1)

THE ACQUISITION OF ENGLISH NEGATION

	L1 English (Klima & Bellugi 1966)	L1 Norwegian (Ravem 1969)	L1 Japanese (Milon 1974) (Gillis & Weber 1976)	L1 German (Wode 1980)	L1 Spanish (Stauble 1978)
Stage I	no heavy no singing song no sit here no pay	-	no more sister no not dog not cold } Milon no, not all day no helps } Gillis & Weber	no play baseball no drink some milk	no want outside no saw him no in Columbia
Stage II	I no taste them he no bite you I can't see you I don't want it	no,I not come now I not like that I don't talking to you I will not more	I not give you a candy you no can go I no queen (Milon) I no like pig not need shoes that's a not flower (Gillis & Weber)	I'm no hungry It's not out you not shut up	not today we don't are(n't)in the same school can no rain
Stage III	I didn't did it I not hurt him That not turning This can't stick	not like it now I don't like it we no don't walk I don't know	I never saw yours you no go win you letter don't play no this one	I didn't can close it they don't lost any game We don't care I don't got any	I didn't went to Costa Rica We didn't saw it They didn't see nobody

such a placement of the negative operator might be argued to be due to mother-tongue influence can in no way damage the striking similarities between the stages (cf. 6.4 below for discussion of mother-tongue influeces; cf. 6.2.2.1 for examples of all stages of the development of negation).

Stage 2 of the table is similar to a combination of stages 1.b and 2 above. The predominance of the placement of the negative morpheme inside the sentence, the use of "not" and the overgeneralization of "don't" which is used in its unanalysed form are all characteristics shared between Stage 2 of the table on the one hand and Stages 1.b and 2 in our investigation on the other.

Stage 3 of the table corresponds to our Stage 4 above in that in addition to the negative operators employed by the learners in the preceding stages, "didn't" is used as a new variant often with double-marking for tense as often done by our subjects.

Another striking similarity with our subjects' performance which is implicit in the evidence provided in the table is the late appearance of "does" which only appears at Stage 5 in our subjects' performance and of which there is no evidence in the data provided in the table which means that up to this stage the subjects studied had failed to produce any negative utterances with "doesn't" as the negative operator. What makes this phenomenon more interesting in the case of our subjects is that "doesn't" is introduced long before "didn't" in the official syllabus (cf. 6.1.2 above).

The only form of negation used by our subjects, no evidence of which appears in the data reported in the table

is the use of the copula as an auxiliary for negating main verbs. Since Arabic has no auxiliary verbs, the only explanation I can think of is that it could be due to what Selinker (1972) called "transfer of training" because teachers in Iraq usually stress the necessity of having helping verbs for negation and interrogation. However, evidence of this phenomenon in the speech of an Arab subject learning English is a naturalistic environment, (see 6.3.2 below) casts some doubt on this argument.

The extreme simplicity of our subjects' initial grammar and its striking similarity to the initial grammar of children learning English as a first language and the initial grammars of speakers of languages other than Arabic, rules out the possibility that the starting point of the continuum above is the fully complex system of a mother tongue (cf. 6.2.1.2 above), but would rather be explained in terms of some basic universal grammar.

The overwhelming evidence that the developmental sequence of negation in our data is similar to the developmental sequence of both first and naturalistic second language acquisition irrespective of the mother tongue of the learners, suggests that the hypothesis, that the developmental sequence is not specific to a certain language background but can rather be explained in terms of universal language development towards the target norm is acceptable.

6.3.2 Comparison with Naturalistic Acquisition by Arabic Speakers.

In this section, we are going to compare the developmental stages of our subjects with those observed by other researchers studying speakers of Arabic learning

English in a naturalistic environment. Table (6.2) displays the development of negation in Arabic speakers in two studies, each of which studied the performance of one subject longitudinally.

Table (6.2) Development of Negation in Arabic-speaking Learners of English in a Naturalistic Situation.

Nielson (1974)	Hanania & Gradman (1977)
Stage 0	Initial Stage
I no know . I don't know.	No English. [I can't speak English]
Stage 1	Period I-IV
Me no like it. Me no speak Spanish. Me no funny .	Not raining. Not here.
Stage 2	Period V-VI
Is no book is dictionary. I can't see. Me not see. Mom not understand English.	Don't eat. I don't know. I can't speak English. I can't understand.
Stage 3	
I'm not like a snake.(don't) I'm not want it. Mommy is not have ice-cream. I can't tell it. I don't believe it. I tell him don't do it that.	
Stage 4	
I'm not gonna need gloves. He's done die. You don't have a car. He don't catch somebody. I don't saw it. It can't broke. I can't ride it.	

In spite of the slow development of the subjects of both studies for reasons outlined by the researchers in each case, there is no room for doubt as to the striking similarity between the sequence of development in the cases

above and that of our subjects. The first three stages in Nielson and the initial stage and period 1-1V in Hanania and Gradman correspond to Stage 1 of this investigation. The use of "no" initially which is later replaced by "not". The use of "I don't know" at the initial stage could be nothing but holophrastic. Stages 3 and 4 in Nielson could either be the same as our Stage 3, the use of both copula and "don't" to negate main verbs, that is if we take it at its face value; however, it could be argued that "I don't believe it" and "don't do it" are learned chunks, notice the use of "it" even before "that", in which case Stage 3 will resemble our Stage 2. Period V-V1 is exactly like our Stage 2, characterised by the use of unanalysed "don't". Thus one can safely declare that, in Arabic-speaking students at least, sequences of development between tutored and untutored learning are similar. This leads to the conclusion that the sequence of development does not totally depend on the conditions under which the learner is exposed to the second language data which lends more support to the hypothesis accepted above (6.1.2).

6.4 Variability by Tasks.

In this section, we are going to examine the third part of Hypothesis 2 above, which reads:

> "Learners move up and down this continuum depending on the degree of formality in their style"

The framework of this assumption is based on the notion that language situations impose different cognitive, linguistic and social demands on the learners and that learners will only succeed in those situations where their ability matches those demands. Fluent conversation, for

example, requires better access to the relevant linguistic information than does the preparation of written text. In the latter case the learner may consult various sources to assist where memory fails. Such sources include Krashen's "Conscious Grammar", or Bialystok's "Explicit/Analysed Knowledge" (cf. 2.5). In written tasks and tasks in which the learner has time to think of what he is going to produce, the learner may consult his conscious grammar through the use of the Monitor, i.e., the learner will be able to monitor or check the output. In other words, the more formal the situation is the monitoring may take place and therefore the better the performance will be. And to bring the matter nearer to home, the more formal the situation is the higher the learner is expected to be placed on the continuum. Since the situation here is one where language is learnt formally in a classroom environment only, heavy use of the Monitor is expected to take place since it is the learned system, the system of rules that the learner has consciously worked on, that monitors the output of the acquired system. Therefore, for our hypothesis to be proved acceptable, it will be necessary that the subjects' performance on the written tasks to be better than on the EI Task; otherwise the hypothesis will be unacceptable.

The analysis of the subjects' performance by Tasks (5.1.1 above) has revealed variable subjects' performance. T-tests and later ANOVA tests have established that the means of scores of subjects' performance on the three tasks differed significantly. Almost all through the analysis a consistent order of task difficulty has been revealed. This has

established the EI Task as the most difficult and the Tr Task as the easiest. T-tests results have also shown closer relationship between the EI Task and the RC Task (T-values = 3.56 and 3.93 at Times 1 and 4 of the experiment consecutively) than between the EI Task and the Tr Task (T-values = 5.52 and 7.59 at Times 1 and 4 consecutively). This establishes the order of formality as follows: the Tr Task is the most formal, while the EI Task is the least formal. Thus on the basis of these results we can accept the hypothesis above.

The variability in the subjects' performance between the two written tasks could be explained as due to the heavier involvement of the Monitor on the Tr Task than on the RC Task. On the Tr Task, the subjects had to pay more attention since they had to produce the whole structure themselves without any alternative available while, on the RC Task, the availability of a ready-made attractive alternative, since it was drawn from their own interlanguage at some time or another, is bound to make them less particular and thus reduce their reference to the Conscious Grammar.

At the initial stages of development there is ample evidence that comprehension precedes production. This phenomenon accounts for target-like utterances, though very few, in the performance of some subjects on the EI Task who had failed to produce any such utterances on the two written Tasks (cf. Appendix B, Tables 6-13). Rather than rebutting the evidence for the use of the Conscious Grammar as this seems to do, it actually confirms the involvement of that Grammar albeit in a passive way. These subjects have failed to

produce any target-like structures on the written tasks because these structures were not yet internalized, i.e., they were not yet part of the subjects' conscious grammar, or to use Bialystok's terms, the knowledge of these structures was not yet analysed. So, the target-like conscious grammar of these structures did not work because, simply, it was not there yet. This explains the absence of reference to check their production for grammaticality. The EI Task on the other hand, though it is an oral task, does not impose the same demands on the learner as fluent conversation does. The subject is not required to create the utterance, but rather to imitate it or what he recognises of it. That's how these subjects managed to imitate parts of utterances, usually the first part, correctly. It is interesting to note that even when they succeeded in imitation, the only structures they managed to recognise are those in the stage next to the one they occupy on the continuum on the written tasks and no more.

6.5 From Marked to Unmarked.

This section is going to be devoted to the testing of Hypothesis 3 which reads:

3.0 Development towards the target norm can be explained through a theory of markedness.

3.a Initial stages of interlanguage are characterised by unmarked categories.

3.b Development towards the target is achieved from unmarked to marked categories.

Before going any further it is first necessary to determine what the unmarked categories for negation would be. Suggested evidence for determining markedness or lack of it includes the frequency of the category and the bahaviour of

this category in simple registers, aphasic disturbance, etc. In simple registers, operations like negation are expressed analytically rather than synthetically which means that the operator appears as a free morpheme rather than as an affix in simple registers. Logical operators such as the negator are often placed before the element they modify, i.e., before the focused element in an utterance, or, if the utterance is a negated sentence with neutral focus, before the "finite" verb, as in "I no can go". In other words the unmarked case has one-to-one correspondence between expression and content element while the marked case has one-to-many correspondence.

A theory of markedness in Hyltenstam's words (2.3.1.1 above) "would state that the analytical expression for negation is marked in relation to the synthetical expression, and further, with regard to placement, that preverbal is unmarked in relation to postverbal".

In the case of this investigation, negation is overwhelmingly preverbal. The initial stage is characterised by the use of "no" as the sole negative operator whether in initial position or between the subject and predicate. The use of "no" as a negator initially instead of "not" might be due to the subjects' familiarity with it through its referential use. The next step arises from the increasing awareness of the referential use of "no" which results in the employment of "not" with "no" sometimes reserved for initial positions only. In this case rather than having one negative operator, the learners have two operators each marked for a specific function.

The next step is the subjects' awareness that "not" is not used in isolation, i.e., negation has to be marked for "aux". Such awareness in our situation is usually brought home to the pupils by the teachers who, in their attempts to magnify its importance to the pupils, assimilate it to a "crutch" without which the "weak verbs" cannot function. Hence, the incorporation of "don't" or the "copula with not" in the subjects' interlanguage as new negative operators in Stage 2 of the continuum. We believe that awareness of tense and aux are combined only at Stage 3 of the continuum, since before that marking for tense was usually made on the main verb.

e.g.

I don't saw ___

I not went ___

He is not played ___

The generalization of "do" or "be" to all situations regardless of tense or number means that these two forms are still unmarked since there is still a one-to-one relationship between form and content element and the only difference is that "don't" or "be not" has replaced "no" or "not" as negative operators.

Then comes the awareness that the aux also functions as a **tense carrier** but not necessarily the only one since they keep marking the main verb for tense, which leads to the incorporation of "didn't" as a new negative operator without necessarily recognising where exactly to use it. This is interesting because it shows that awareness of tense overrules that of number hence the disregard for "doesn't" though it precedes "didn't" in the pedagogical sequence. Even when

"don't" is reserved for use for the present tense only, it is still unmarked for number. This seems to come last when "doesn't" becomes part of the learners' interlanguage.

The evidence is displayed schematically in Figure 6.2 above and tabulated in Appendix B, Tables 17-24. This consistent evidence at all Times of the experiment and on all Tasks makes it possible for us to accept the hypothesis above.

In the area of the copula, evidence from the field of pidgin studies suggests that the absence of the copula is unmarked in relation to its presence. Thus evidence of the use of the copula in this study also supports the hypothesis accepted above. The lack of more evidence in this area makes it difficult to proceed any further. However, evidence from first language acquisition strongly implies that the path followed by our subjects in the process of elaboration in the use of the copula is by no means unique (cf. the Labov studies, and Anshen 1975).

6.6 The Role of the Mother Tongue.

This section is an attempt to answer the questions implicitly raised in Chapter 1 above whether the subjects' mother-tongue, Arabic, is responsible for the Iraqi students' poor performance in English, i.e., interferes with the learning process.

All through the discussion of the results, little bits were said here and there about the mother-tongue and evidence of its presence in the subjects' production. In this section we are going to put these bits and pieces together, support them with more evidence both qualitative and

quantitative and build up a clear picture of what we think is actually happening in that controversial area and assign to the mother-tongue the role it actually plays in the learning process.

A lot has been said about the influence of Arabic on the learners' attempts to learn English, i.e., mother-tongue interference or transfer, especially in the area of the reduction of the copula (cf. Chapter 1 above). The reduction of the copula in Arabic-speaking learners' performance have always been attributed to the influence of the mother-tongue, a stand we are going to dispute later in this section. However, even if we regard the phenomenon as attributable to mother-tongue interference, taking Tr1 as an example of the subjects' performance on this Task, we find that this strategy is responsible for 66% of the total number of errors made by the 25 subjects who have produced non-target-like structures in this structural area. The rest of the errors were mainly the using of other verbs, incomplete structures or even instances of avoidance where the subject opted for non-production in spite of the researcher's frequent attempts to impress on the subjects not to leave any sentence untranslated. We also find that this strategy is most influential among the subjects at the first stage of the developmental continuum (6.2.1.1 above) where the subjects produced no structures with a copula at all. The three subjects at this stage produced 45% of these so called transfer errors made by the 24 subjects in whose performance such errors were found to exist. Out of the total number of errors made by these three subjects, transfer errors constituted 89%. Since

there is no evidence of Stages 2 and 3 at this Time of the Tr Task, the next stage is Stage 4 where transfer errors make up 41% of the total number of transfer errors made by the 24 subjects. But unlike the situation at Stage 1 this figure represents only 49% of the total number of errors made by the subjects at this stage. However, if, on the basis of the abundance of evidence from the fields of pidginization and the acquisition of English as a first and a second language, we exclude the phenomenon of mere copula reduction as evidence of mother-tongue interference and restrict this term to the instances where the subjects produced utterances that could be judged to be peculiar to Arabic speakers, we find that such errors drop from 66% of the total number of errors to a mere 5% with 53% of these errors made by the subjects at Stage 1 and the remaining 47% made by one subject at Stage 4.

On the RC Task, Time 1 of the experiment, using the same characteristics as initially used above for determining transfer, we notice that transfer errors constitute as much as 91% of the total number of errors made by the 44 subjects who produced some sort of deviant structures. 16% out of these were made by the 2 subjects at Stage 1 of the continuum (Table 9, Appendix B). In the performance of these two subjects, transfer errors account for 96% of the total number of errors they made. At the next stage which is also Stage 4 the number of errors attributed to transfer drops slightly to 90%. However, unlike the Tr Task there is not any sentence in all of the subjects' performance on this Task that could be said to have structural characteristics peculiar to those produced by Arabic-speaking learners.

On the EI Task the picture painted is quite different from those of the other two tasks. On this task the dominating strategy at the earlier stages of the continuum is that of avoidance. The subjects at the earlier stages, especially those at Stage 2 of the continuum (Table 12, Appendix B), could produce very little English orally, therefore, the relationship between the strategy of transfer and those involving other strategies, such as avoidance and overgeneralization, is reversed. At Time 1 of this task, considering reduction as evidence of transfer, this strategy accounts for 23% of the errors made by the 57 subjects who have made them. We would like to emphasize here that failure to respond has been considered as an error all through this section since this involves a risk-avoiding strategy, namely that of avoidance (cf. 2.4.2.2 above). Avoidance is most powerful at Stage 1, then its use begins to decrease as the subjects move up the continuum and begin to produce more and more target-like structures. The less avoidance is employed the more transfer is apparent, thus the rate of its use is always ascending. While at Stage 1 possible transfer constitutes 6% of the errors (avoidance is well over 90%), at Stage 4 it accounts for 24% of the total number of errors made by the 33 subjects at this stage. At Stage 5, the number of errors attributable to transfer increases to 36%, while at Stage 6 which is the last stage before the subjects attain categorical realization of the copula in all environments, the figure goes up to 55%. (There are no instances of avoidance at this stage). Again there are no utterances that could be judged to be structurally peculiar to Arabic-speaking learners.

The subjects' performance on negation is more clear cut and more conclusive since Arabic is, as far as the available research on negation is concerned, unique in its sentence-initial preverbal negation which makes it possible for the researcher to draw a line between what is definitely transfer and what is not. The picture painted by the subjects' performance on Tr1 is identical, at least in its overall structure, to that of their performance on the copula on Tr1 and RC1. Transfer errors on Tr1 constitute only 18% of the total number of errors made by the 58 subjects who had produced any non-target-like structures. 55% of these transfer errors were made by the subjects at Stage 1 of the continuum (cf. Table 17, Appendix B). Transfer errors represent 86% of the errors made by the subjects at this stage. This proportion of transfer errors drops sharply at Stage 2 to 18%, while at Stage 3 it decreases to a mere 4% of the total number of errors produced by the subjects at this stage. This picture is confirmed longitudinally. On Tr1 transfer errors formed 72% of the number of errors made by S11 while on Tr4 this figure was exactly halved (36%). S9 produced errors on Tr1, 52% of which are transfer ones, while on Tr4 there were no transfer errors in his production at all. The same is true, though to a lesser extent in the case of S8. In this subject's performance on Tr1 transfer errors make up 50% of the errors he made while on Tr4 they constitute 42% only.

On RC1 though the number of transfer errors is far smaller than that on Tr1, only 5% of the total number of errors produced by the subjects, the picture painted is similar to that of Tr1. 78% of the transfer errors are

made by the subjects at Stage 3 of the continuum (Stage 1 for the task) (cf. Figure 6.2 above and Table 20, Appendix B). The proportion of transfer errors to the subjects' performance is highest at this stage (7%) while at Stage 4 the rate drops to 3% only and at the next stage, the figure drops to a negligible figure (1%).

As for EI1, we have found no evidence of any transfer errors in the performance of the subjects.

The above evidence indicates that mother-tongue evidence is restricted to the earlier stages of development and is greatest at the earliest stage and is also restricted to the written tasks where the subjects had no chance of avoidance. It is worth mentioning here that the subjects had always been reluctant to produce sentences structurally similar to Arabic such as sentences with the copula in the past tense or negative structures. Moreover, when they did produce such structures they mostly opted for structures other than those of the mother-tongue, for example, they preferred the reduction of the copula to starting the sentence with a verb as in Arabic. Only one subject did otherwise, i.e. translated the structure word for word from Arabic. S12, interestingly, in copying the Arabic structure transliterated the Arabic copula "kān" rather than using any form of the copula in English. This leads us to believe that:

a. the subjects are aware of the "language distance" (cf. Kellerman 1977, Corder 1978c) i.e., they "feel" that Arabic structures are not translatable word for word into English due to the diversity between the two languages.
b. transfer, at least in the case of our subjects, is more

a strategy of communication than one of learning, since the subjects only resort to it when they are forced to produce in the target language structures that have not yet been internalized by them. This is a case where the communicative pressure is beyond the learner's knowledge in the second language, i.e., the learner is required to perform beyond his implicit knowledge. In other words, what is happening here could better be coined as "borrowing" to use Corder's (1978, 1981) term. Thus learners' avoidance could be explained through their awareness of the greatness of the language distance which will eventually lead them to discover the relative unborrowability of much of their mother tongue.

c. the reduction of the copula in equational clauses can better be explained in terms of the learners' "regression" to a basic universal grammar than in terms of mother-tongue interference or transfer. In addition to the evidence provided by the research of the different fields of human learning of English the absence of relexification of mother-tongue structures with past tense copula, the persistance of the reduction of the copula even when the phenomenon of transfer had long disappeared from areas which are formally far more complicated for the subjects than the copula and the existence of structures where the copula is reduced in the EI Task where no other evidence of any sort of transfer has been found to exist support this stand.

CHAPTER SEVEN

Conclusions and Pedagogical Implications

7.1 Interlanguage Development.

In order to determine the route the learners follow in the second language process this study has suggested the use of Implicational Scales as a better indicator of such a route than Guttman Scales, where data is dichotomised into acquired and not acquired, thus obliterating all variation leading to the acquisition of the structure. These Scales with their capability of displaying elaboration and sequent change toward the target language form are excellent indicators of the elaboration the language-learner language undergoes by processes such as increasing conditions on the applicability of syntactic features and by getting further up into implicational hierarchies, and learning the appropriateness of stylistic variation.

The sequences reflecting the learners' natural sequences were incorporated into interlanguage continua, one for each structural area, reflecting the development of the learners' interlanguage grammar in its approximation toward the target norm. The two salient characteristics of this type of continua were found to be its recreational nature and its increasing complexity. Rather than starting at the fully-complex system of the mother-tongue and being equally complex all through the developmental process, the continuum was found to start at some simple basic grammar, universal in its characteristics, with the complexity increasing until the fully complex system of the target is

attained. Our subjects' progress is by no means unique and there is a strong indication that not only native speakers but also second and foreign language learners have access to universals of language acquisition. The process of complexification was found to be explicable in terms of a theory of markedness with the learners moving from the unmarked to the marked. This study has failed to discover a continuum embracing both structural areas under investigation.

Now what are the pedagogical implications of such sequences and continua? Platt (1976) believes:

> "Data based on implicational scaling would help considerably in providing short cuts in the whole learning process. It would save time often wasted in programmes containing linguistic features which are either conceptually premature or have already been acquired by the learner at an earlier stage.... Grading of materials with the help of simple or frequency scaling could be invaluable in programme structuring as it closely follows a societally defined gradation".

Hyltenstam (1978b) takes a similar stand emphasising the necessity that the build up of competence in the second language should follow the natural process. Thus he concludes that many of the procedures and processions used now may have to be altered.

The evidence in the data of the learners' movement up and down the continuum must bring some kind of relief to both teachers and learners. They need not be disappointed by the lack of any sudden change in the learners' language behaviour after the introduction of new items or even by any evidence of "regression" in this behaviour. The process of getting a particular target rule in operation

can be quite a long-lasting affair and may involve a lot of hypothesis testing on the part of the learner in order to get to the "acceptable" form. This phenomenon has also been observed in children learning English as a first language. Brown (1973) reports:

> "Since the first copulas and auxiliaries appeared at Stage II, it looked as if the form must oscillate between presence and absence in obligatory contexts for something like two years".

7.2 Pedagogical Sequence vs Natural Sequence/ Input vs Output.

Evidence in the data strongly establishes that the prescribed linguistic syllabus, or at least some of its structural areas, appears to have no significant influence on the way the subjects seem to have internalized the use of the structures investigated. This seems to be quite in line with Corder's (1967) belief that second language learning follows a natural syllabus. It seems some items are introduced prematurely which is as useless to do as to try and teach children features they are not ready for - although, in the case of children the natural syllabus seems to be dictated by both conceptual and structural conditions, which seems not to be the case for adult learners. It seems in this case that the syllabus does not respond to the learners' initiatives and needs. The pedagogical implication of such a situation is well expressed by Corder (1977b)

> " 'Good' or 'appropriate' teaching is, therefore, perhaps no longer to be seen as imposing a highly organised and detailed syllabus upon a group of learners and as a process of putting in or handing out information, but as the task of responding to the developing functional or talking needs of the learner by making the appropriate data for learners available on request"

Corder's statement raises the important question of how much the present linguistic syllabus methodologically responds to the learners' immediate and very limited functional needs, in a situation where English is only practised in the classroom and never used outside. The only communicative need for English is that of passing language tests and examinations, most of which are totally written. Does a strictly organised structural syllabus respond to the functional needs of the learners? Is it practical to apply an English-as-a-second-language syllabus to a foreign language situation, and to give first priority to the speaking skill where English has no such function, at least immediately or even in the near future, in everyday life? The question as the evidence of the study shows is "no" all through. Furthermore, Krashen (1981) believes that "What is considered the most essential component of language instruction,explicit information about the language, and mechanical drill may be the least important contributions the second language classroom makes".

Thus, to sum up, we think that the present linguistic syllabus in Iraqi schools is not sensitive enough to respond to the needs and initiatives of the learners. Such a tightly controlled linguistic syllabus may have

retarding effects in the sense that if the learner is never allowed access to any form not prescribed by that syllabus the learner may well be deprived of precisely the information which the current state of his interlanguage requires (cf. Corder 1978b). This might have been less serious had the situation been that of a second language where the learner might be able to fill this gap by getting the information somewhere outside the classroom, but in our subjects' situation the linguistic syllabus is the one and only access to that vital information since it is followed to the letter even by the teachers. It is thus recommended that linguistic syllabus writers should take into consideration the results of empirical studies and modify the syllabus accordingly.

7.3 Variability according to Task.

As expected, the subjects proved to be variable according to task formality. The more formal the task, the better the subjects' performance is. This has been explained as due to the heavy involvement of the Monitor. The situation, being a totally foreign language situation, proved to be an "acquisition poor" one where spontaneous performance was very low, hence, the low scoring on the Elicited Imitation Task compared to the other two written Tasks. It seems that the extent of the use of the Monitor does not totally depend on the time available but also on other factors such as the amount of attention paid to the task and motivation towards the task. This explains

the difference between the results of the two written tasks.

However, contrary to Larsen-Freeman's (1975) findings, the accuracy order of the items does not seem to be affected by the type of task, i.e., there is no specific order for tasks eliciting oral production only.

Pedagogically, Krashen (1981) believes that the situation can be remedied. The most direct way in which the classroom can promote language acquisition is by making intake (= input that is understood) available via meaningful and communicative activities supplied by the teacher.

Another aspect of these results which is pedagogically significant and which is related to the conclusion in the last section is that we are now able to define what is successfully learned for some situations and what is used by the learner in others. Description of the learner proficiency, then, must be placed in a context of the demand being placed upon him. In other words a better definition of the communicative demands the learners are going to face should be arrived at and a syllabus able enough to build up the learners' ability to match these demands should be written. This will inevitably lead to a reduction of the demands placed on learners by the present syllabus of which they have no use in their daily life whether at school or elsewhere. Such a reduction will naturally reduce the complexity of the linguistic resources needed. If the demands are found to be too restricted they can be increased by making

meaningful and communicative activities by the syllabus and by training the teachers in such a way as to relax the tight grip of the syllabus and create such activities themselves in the classroom. Moreover, the syllabus is based on habit formation through intensive oral drilling while several recent studies cited in Krashen (op cit) have implied that less insistence on early oral performance may be profitable for children and adults studying second languages in formal settings.

7.4 The Role of the Mother Tongue.

The first important conclusion arrived at in this research is that there seems to be no difference between foreign-language and second-language learners regarding the way the target language is processed. Similar learning strategies seem to be employed in the learning process. The dominant phenomenon is that of over-generalization. It is worth noticing here that we share Corder's belief that overgeneralization, though widely regarded so, is not a learning strategy but rather another feature of simplification, thus it cannot be intentional since the learner does not know that he is overgeneralizing. At the earlier stages there is more evidence of rule-elaboration, i.e., when the use of an interlanguage rule is extended to include more linguistic environments. Reliance on overgeneralization is directly proportional to proficiency in the target language. These findings are quite in line with the conclusions arrived at by such researchers as Taylor (1975) and Larsen-Freeman

(1975, 1976). This phenomenon is at its lowest at the earliest stage in the written tasks.

It is apparent that the only lasting phenomenon is that of overgeneralization, since the only other one evidenced is that involving the use of mother-tongue structures. The latter is at its highest at the earliest stage of development, then it declines so sharply that no evidence of it has been noted after Stage 3 of the continua. Evidence shows that the use of the mother-tongue is not due to a learning strategy of transfer but rather to a communicative one of "borrowing" simply resulting from the performer being called on to perform before he has learned the new behaviour. The learner is in fact, "padding", using old knowledge, supplying what is known to what is not known. The evidence seems to support Krashen's point of view in that what is happening is that the first language "substitutes" for the acquired second language as an utterance initiator when the performer has to produce in the target language but has not acquired enough of the second language to do so. Another interesting finding is that the period in which the first language is heavily used in the written tasks corresponds to the "silent period" on the oral task. This seems to be the period when the learner may be building up competence via input. Reliance on the first language is inversely proportional to proficiency in the target language. Thus, first language influence may be an indication of low acquisition. If so it can be eliminated or at least reduced by natural intake and language use.

Evidence in this study as well as that of other studies in the field of pidginization and second language acquisition leaves no doubt that the reduction of the copula in the performance of Arabic-speaking learners of English is not, as has been widely believed, evidence of mother-tongue interference, but can rather be explained in terms of the learners' "regression" to a basic universal grammar.

Pedagogically, as far as the situation in Iraq is concerned, evidence here as well as that above, establishes without any doubt that the belief in mother-tongue oriented syllabuses is just a fallacy and that posing such a condition,if not damaging is useless. Finally, all evidence up to now has established the inadequacy of structural syllabuses or indeed syllabuses with any control on the availability of the input and that for an optimum learning situation it is necessary to provide a situation where no control whatsoever is exercised on the available data for the learners to draw upon, i.e., any structural item the learner might need will be available to him at the time he needs it.

APPENDIX

« A »

APPENDIX A 1

THE PILOT EXPERIMENT

RECOGNITION & CORRECTION

الاسم: ..... الجنس: ..... العمر: .....

المدرسة: ..... الصف: .....

عدد سنوات الدراسة بالإنكليزية: .....

لغة التحدث في البيت: .....

هل سبق وسافرت الى بلد يتكلم أهله الانكليزية: .....

(في حالة الايجاب) اذكر اسم البلد والمدة التي قضيتها هناك: .....

والآن،

على الصفحات التالية بعض الجمل، اقرأ كل واحدة منها بعناية. فاذا كانت برأيك صحيحة ضع اشارة (✓) بين القوسين في نهايتها. أما إذا كانت برأيك خطأ، فضع اشارة (X)، وأعد كتابة بحيث تصحح مابها من خطأ؟

وشكراً

A 1 1.

1) He not go yesterday.( )

2) Ali here last night.( )

3) Did you play football yesterday? ( )

4) You no can go.( )

5) Was Layla here last week.( ) هذه الجملة ليست سؤالاً

6) See my pen? ( )

7) I haven't seen all of it.( )

8) Who that? ( )

9) I don't can go.( )

10) What she is doing? ( )

11) He did not worked hard.( )

12) I can not see anything.( )

13) He not little.( )

14) Where the horse go? ( )

15) I no want an envelope.( )

16) This a book.( )

17) What Ali doing? ( )

18) Was here last night.( )

19) The boy did not went last week.( )

20) I not going to the Youth Centre.( )

21) No open it.( )

2.

22) Did I saw that in my book? ( )

23) That girl clever.( )

24) Tom and Dick not go to school on bicycle.( )

25) Why Tom caught it? ( )

26) All the pupils in the classroom yesterday morning.( )

27) No the sun shining.( )

28) What did he listened to?( )

29) My brother a soldier.( )

30) The pupils not like music.( )

31) Selma at home last night.( )

32) The girl does not helps her mother.( )

33) Were the boys at school last Friday. ( ) الجملة إستفهامية

34) The cat under the table.( )

35) They no be here now.( )

36) When does the boy gets up every morning? ( )

37) No understand.( )

38) What this? ( )

39) Can I have a piece of paper? ( )

40) When do you can go? ( )

41) She not is here.( )

A 1

3.

42) Who in the Youth Centre yesterday? ( )

43) They not will come tomorrow.( )

44) Why the boys go to school? ( )

45) You not are a teacher.( )

46) Will you help me? ( )

47) I not have seen him.( )

48) Does birds fly? ( )

49) They no working hard.( )

50) These books new.( )

APPENDIX A 2

THE PILOT EXPERIMENT

TRANSLATION

الاسم : .....

اقرأ كلاً من الجمل التالية ، وترجمها الى اللغة الإنكليزية بالشكل الذي تراه مناسباً. الرجاء كتابة الترجمة بخط واضح على الجهة اليسرى ، مقابل الجملة . وفي حالة وجود استفسار عن معنى أية كلمة في الانكليزية نحن على استعداد تام للمساعدة . وشكراً .

١. عليّ تلميذ . .....

٢. لم أذهب الى المدرسة . .....

٣. أين ليلى ؟ .....

٤. لا أحبّ الشاي . .....

٥. كان هنا . .....

٦. هل يأتي سمير كل صباح ؟ .....

٧. البنات لا يلعبن كرة القدم . .....

٨. متى جاء المدرس ؟ .....

٩. القطة تحت المنضدة ؟ .....

١٠. لم أساعد سلمى أمس . .....

١١. لا تلعبوا في الصباح . .....

١٢. الرجل قصير . .....

١٣. هل عندك سيارة ؟ .....

١٤. زكي وليلى لم يكونا في البيت . .....

١٥. متى ينهض عليّ كل صباح . .....

١٦. هل كنتم هناك ؟ .....

١٧. كان الكتاب تحت الكرسي .....

١٨. ماذا قرأت البارحة .....

١٩. الفاتين جميلة . .....

٢٠. هل يكتب الرجل رسالة كل يوم ؟ .....

٢١. لاتضع القلم على الكرسي .

٢٢. كانوا في المدرسة أمس

٢٣. هل هذا الدفتر نظيف ؟

٢٤. أنا قوي .

٢٥. هل لعبت كرة القدم أمس ؟

٢٦. كنت مريضاً

٢٧. لم أنم البارحة

٢٨. ليس المعلم في المدرسة

٢٩. هل يحب الاولاد البرتقال ؟

٣٠. هذا كتاب

٣١. من يدرّسك العربية ؟

٣٢. لست كسلانا

٣٣. هدى لم تكن في الصف

٣٤. أين يعمل أبوك ؟

٣٥. هل هذه البيوت جديدة ؟

٣٦. بعض الأولاد لا يأتون الى المدرسة كل يوم

٣٧. ليسوا صغاراً

٣٨. لا أستطيع أن أكتب

٣٩. لا يذهب أخي الى حديقة الحيوانات كل يوم

٤٠. هل تستطيع أن تسبح ؟

PENDIX A 3

الاسم - - - - - - -

الصف - - - - - -

ANSLATION TIME ONE

اقرأ كلاً من الجمل التالية وترجمها الى اللغة الانكليزية بالشكل الذي تراه مناسباً. الرجاء كتا
الترجمة بخط واضح على الجهة اليسرى مقابل الجملة. واذا وجدت صعوبة في ترجمة اية كلم
يرجى الرجوع الى القائمة المرفقة .... وشكراً.

١. الكتاب على الرحلة ... - - - - - -

18. انتم في بيتي .
19. لم يأتِ المعلم الى المدرسة .
20. كُنا مرضىٰ
21. لم أكُن في المتحف .
22. لا تذهبوا الى السينما . (أمر)
23. كانت في المكتبة .
24. لن يشتغل الرجل غداً
25. كانوا فلاحين .
26. لا يستطيع الرجال ان يذهبوا
27. هي قصيرة .
28. لم يكن اخوك معلماً
29. الولد في المدرسة
30. لا ألعب كرة القدم
31. هو المديرُ .
32. لا يشرب بعض الناس الشاي
33. كانت الغرفة نظيفة .
34. لم يذهب اصدقائي الى حديقة الحيوانات أمس .
35. لستُ كسلاناً .
36. هو في الحديقة .
37. لا تتكلم في الصف . (أمر)
38. هؤلاء الرجال معلمون .
39. لا تساعد الفتاةُ أخاها .

40. لن تشتري النساء الخبز .

41. أنا صغير .

42. لا يستطيعون أن يساعدوك .

43. كنا في بابل .

44. لا يشتغل الفلاحون في الليل .

45. لم يدرس أمس .

46. كان سائقاً .

47. لا تلعبوا في الشارع . (أمر)

48. ليس العامل متأخراً .

49. الرجال أقوياء .

50. يجب أن لا يلعب الأولاد طول اليوم .

51. لا يجلس التلميذ فوق الرحلة .

52. أنا تحت الشجرة .

53. لن نزورك .

54. لم يغسل التلميذ وجهه أمس .

55. أنتم المهندسون .

56. ليس الكرسي في الحديقة .

57. كان غنياً .

58. لا يزور صديقه كل يوم .

59. لا يستطيع الولد أن يسبح .

60. لم يكن فقيراً .

APPENDIX A 4

الاسم - - - - - - -

الصف - - - - - -

TRANSLATION TIME TWO

اقرأ كلاً من الجمل التالية وترجمها الى اللغة الانكليزية بالشكل الذي تراه مناسباً . الرجاء كتابة الترجمة بخط واضح على الجهة اليسرى مقابل الجملة . اذا وجدت صعوبة في ترجمة اية كلمة يرجى الرجوع الى القائمة المرفقة - - - - وشكراً .

1. أنا شرطيّ .
2. لا يساعد نوري أخاه . . . . . .
3. لاتذهب الآن . (أمر) . . . . . .
4. الطير على الشجرة . . . . . .
5. لم آخذ كتابك أمس . . . . . .
6. صوته جميل . . . . . .
7. لا أستطيع أن أرسم . . . . . .
8. أخي طيّارٌ . . . . . .
9. يجب ان لاتغنّي في الصف . . . . . .
10. لن أشتري البرتقال . . . . . .
11. هي صغيرةٌ . . . . . .
12. ليس الكتاب نظيفاً . . . . . .
13. كانت القطة على المقعدة . . . . . .
14. لايدرس التلاميذ الانكليزية كل يوم . . . . . .
15. لايكتب على الرحلة . . . . . .
16. كانت المرأة مريضة . . . . . .

16. لا نلعبُ الكرة الطائرة كل يوم .

18. هم في الحديقة .

19. لم يسأل التلميذُ المعلم .....

20. كنا تعبانين . (تعبين) .

21. لم أكن في بغداد .....

22. لا تسعوا السبورة . (أمر)

23. كان في المصنع .....

24. لن يقرأ الرجلُ الجريدةَ .

25. كانوا معلمين .....

26. لا يستطيع احد قاؤك ان يساعدوك .....

27. انت ذكيٌ .....

28. ليس الرجل قصاباً .....

29. الحيوانات في المزرعة .....

30. لا أريد الكتابَ .....

31. هو العالمُ .....

32. لا يشاهد الاولاد التلفزيون كل ليلة .....

33. كانت سيارته قديمة .....

34. لم يشترِ الاولادُ الكتب .....

35. لستُ حزيناً .....

36. هي في المطبخ .....

37. لا تصنّفه . (أمر)

38. هؤلاء الرجال جنودٌ .....

A 4

39. لن يغسل الرجل قميصه .....

40. لن يذهبوا الى المستشفى .....

41. أنا قصيرٌ .....

42. لا يستطيعون ان يفتحوا الباب .....

43. كنا في المكتبة .....

44. لا يذهب اصدقائي الى السينما .....

45. لم يكتب رسالة أمس .....

46. كان عاملاً .....

47. لا تقفوا هنا. (أمر) .....

48. لم يكن بقالٌ .....

49. القمصان نظيفة .....

50. يجب ان لا يأتي التلاميذ متأخرين .....

51. لا يدرّسُ المعلم اولاده .....

52. أنا في المصرف (البنك) .....

53. لن يلعب الاولاد الشباك .....

54. لم يذهب أخي الى حديقة الحيوانات أمس .....

55. انتم المعلمون .....

56. ليس الكتاب في الرحلة .....

57. لا يشرب الحليب كل صباح .....

58. كان مريضاً .....

59. لا تستطيع الفتاة ان تغنّي .....

60. لم يكونوا سعداء .....

PPENDIX A 5

الاسم ----------

الصف ----------

CANSLATION TIME THREE

اقرأ كلاً من الجمل التالية وترجمها الى اللغة الانكليزية بالشكل الذي تراه مناسباً. الرجاء كتابة الترجمة بخط واضح على الجهة اليسرى مقابل الجملة. واذا وجدت صعوبة في ترجمة اية كلمة، يرجى الرجوع الى القائمة المرفقة ---- شكراً.

١. الجملة على السبورة ----------

2. لا تجلس سلمى هنا ----------

3. لا ترسم شجرة. (أمر) ----------

4. أنا سائقه ----------

5. لم أدرس العلوم في العام الماضي ----------

6. المزرعة جميلة ----------

٦. لا أستطيع أن أريك المجلة ----------

٨. أختي مريضة ----------

9. لن أعطيك الجريدة ----------

١٠. يجب ان لا تستيقظ متأخراً ----------

١١. هي ذكية ----------

١٢. ليس البيت كبيراً ----------

13. كانت الطيور على الشجرة ----------

14. لا تأكل القطط الفاكهة ----------

١٥. لا يأكل الجبن ----------

١٦. كان الرجل قصيراً ----------

A 5

17. لا نشتري البيض كل يوم .....

18. هم في المكتبة .....

19. لا تشاهد البنت التلفزيون .....

20. كنا سعداء .....

21. لم أكن في البيت .....

22. لا تكتبوا على الحائط. (أمر) .....

23. كانت في الحديقة .....

24. لن يضع الولد القلم على الرحلة .....

25. كانوا بقالين .....

26. لا يستطيع الولدان أن يلعبوا .....

27. هو نظيف .....

28. ليس الرجل شرطياً .....

29. العمال في المصنع .....

30. لا أبيع التفاح .....

31. هو الخباز .....

32. لا يبيع الخبازون اللحم .....

33. كان علي حزيناً .....

34. لم يسمح التلاميذ الشورة .....

35. لستُ مريضاً .....

36. هو في الدكان .....

37. لا تأخذ المجلة. (أمر) .....

38. هؤلاء الولد تلاميذ .....

39. لا يمشي الرجلُ في الشارع .....

40. لن يكتبوا أي شيء .....

41. أنا كسلان .....

42. لا تستطيعون ان تعودوا اليوم .....

43. كنا في حديقة الحيوانات .....

44. لا يحبّ اصدقائي كرة القدم .....

45. لم يُصغِ الى المعلم .....

46. كان طفلاً .....

47. لا تفتحوا كُتُبكم. (أمر) .....

48. لم يكن مهندساً .....

49. الفساتينُ طويلةٌ .....

50. يجب ان لا يجلس الاطفال هنا .....

51. لا يقف الولدُ تحت الشجرة .....

52. أنا في المدرسة .....

53. لن يلعب الاطفالُ كرة المضرة .....

54. لم تغنِّ سَيتا أمس .....

55. انتم العلماء .....

56. ليس القاموس في الرحلة .....

57. لا يساعدُ اباهُ كل يوم .....

58. كان تعباناً .....

59. لا يستطيع القطُّ أن يسبح .....

60. لم يكونوا اصحّاء .....

APPENDIX A 6

TRANSLATION TIME FOUR

الاسم : التاريخ :

الصف : العمر :

إقرأ كلاً من الجمل التالية وترجمها الى اللغة الانكليزية بالشكل الذي تراه مناسباً. الرجاء كتابة الترجمة بخط واضح على الجهة اليسرى مقابل الجملة واذا وجدت صعوبة في ترجمة اية كلمة يرجى الرجوع الى القائمة المرفقة أو سؤال الاستاذ دون تردد...

١. الكتاب على الرحلة .

2. لديا عد الولد أخته.

3. لاتفتح الباب (أمر) .

4. أنا تلميذ.

5. لم أشترِ الكتاب أمس.

6. الكتاب جديد .

7. لا أستطيع ان أسبح .

8. اخي طبيبٌ .

9. سوف لا أذهب غداً .

10. يجب ان لا تلعبوا في الشارع.

11. البيت كبيرٌ .

12. ليس الرجل قصيراً .

13. كان المعلم في المدرسة

14. لا نذهب الى المدرسة في تموز .

15. لا يحبُّ التفاحُ .

16. كان الرجلُ قصّاباً .

17. لا يلعب الاولاد كرة القدم كل يوم .

18. أنا في الحديقة .

19. لم يأتِ المدرسُ الى المدرسة امس.

20. كنا فقراء .

21. لم يكن في المكتبة .

22. لا تكتبوا على الحائط .(أمر)

23. سوف لا يشتري أبي شاة غداً .

24. كانوا في حديقة الحيوانات .

25. لا يستطيع الاولاد ان يركضوا .

26. هي جميلةٌ .

27. كانوا مهندسين .

28. الجبلُ على السورة .

29. ليس الرجلُ محامياً .

30 . لا أريد القلم .

31 . هو المدير .

32 . لا يبيع الخبازون اللحم .

33 . كانت سيارته قديمة .

34 . لم يأتِ صديقي إلى المدرسة أمس .

35 . لم يكونوا مرضى .

36 . لا تتظلم في الصف . (أمر)

37 . هؤلاء الرجال ملاّحون .

38 . لا يذهب علي إلى السينما كل أسبوع .

39 . أنتم في بيت .

40 . سوف لا نشاهد التلفزيون هذا المساء .

41 . أنا ذكي .

42 . لا يستطيعون أن يساعدوك .

43 . كنا في البصرة .

44 . لم يدرس العربية أمس .

45 . لا يمشي الناس في الشارع .

46. كان سائقاً .

47. لاتسمعوا السورة . (أمر)

48. لم يكن عاملاً .

49. الفستانين طويلة .

50. يحب الله لايجلس الطفل هنا .

51. لايزور الولد صديقه كل يوم .

52. القطة تحت المظلة .

53. سوف لايزورك صديقك غداً .

54. لم يغسل التلميذ وجهه امس .

55. نحن جنودٌ .

56. ليس الطيرُ على الشجرة .

57. كان حزيناً .

58. لايشربُ الحليبَ كل صباح .

59. لاتستطيع هذه البنتُ ان تغنيّ .

60. لاتأخذ كتابي . (أمر)

وشكراً مرة أخرى .

APPENDIX A 7

RECOGNITION & CORRECTION / **TIME ONE**

Read each of these sentences very carefully. If you think it is correct, put (√) between the brackets at the end of the sentence; if you think it is wrong, put (X) between the brackets and rewrite the sentence, correcting any mistake you find.

1. The man a doctor ( )

2. He can don't go now ( )

3. He went to the zoo yesterday ( )

4. They not go to school everyday ( )

5. She ill last week ( )

6. She not was a nurse ( )

7. No the boys will play next week ( )

8. I not fat ( )

9. The girl not like tea ( )

10. The book on the table ( )

11. Not talk in the classroom ( ) أدب

12. You a pupil ( )

13. Selma must don't talk in the classroom ( )

14. My father not be in the garden ( )

15. The book old ( )

16. I in the kitchen ( )

17. No the boys like apples ( )

18. He is not visit me every week ( )

19. The girl not can read well ( )

20. No gave me the man the book yesterday ( )

21. These women the teachers ( )

22. He not sleep well last night ( )

23. He clever ( )

24. These men not play tennis ( )

25. The pupils at school now ( )

26. No sit here ( ) أجلس

27. My father not saw Ali last week ( )

28. This boy a worker ( )

29. The teacher no will punish him ( )

30. The dog under the chair ( )

31. She not was beautiful ( )

32. He the engineer ( )

33. The weather nice yesterday ( )

34. She no can speak English ( )

35. Not look through the window ( ) أكتب

36. I strong ( )

37. He will don't come by bus ( )

38. She not works hard ( )

39. The policeman was not stop the car ( )

40. You in my office now ( )

41. He sits in front of Ali ( )

42. No write my brother and sister a letter everyday ( )

43. He a student here last year ( )

44. You not must play all the day ( )

45. The teacher in the library ( )

46. Not my brother gets up early every morning ( )

47. That man short ( )

48. No open the door ( ) أكتب

49. She not will arrive tomorrow ( )

50. Not can the old man walk ( )

51. Selma at home yesterday ( )

52. They are not work every morning ( )

53. These pupils lazy ( )

54. Your father don't a farmer ( )

55. You rich ( )

56. He not watched T.V. last night ( )

57. She don't at this school last year ( )

58. Not sells the man oranges ( )

59. The house not big ( )

60. His sister a nurse ( )

61. My brother in bed last night ( )

62. I a teacher ( )

A 8 RECOGNITION & CORRECTION/TIME TWO

Read each of these sentences carefully. If you think it is correct, put (√) between the brackets at the end of the sentence; if you think it is wrong, put (X) between the brackets and rewrite the sentence, correcting any mistake you find.

1. That man is a pilot (X)

2. He is not can play tennis (X)
   He can not play tennis.

3. Please, show me that magazine (√)

4. The girl not is a pupil (X)
   The girl is not a pupil

5. They not visit the library everyday (X)
   They aren't visit the library every day.

6. She late yesterday (X)
   She came late yesterday.

7. No the workers will work next week (X)
   The workers will not work next week

8. I not short (X)
   I am not short

9. No the baker sell meat (X)
   The baker didn't sell meat

10. You a boy (X)
    You are a boy.

11. Layla don't must play all the time (X)
    Layla didn't must play all the time

12. No take this magazine (X)
    don't take this magazin

13. The milk in the bottle (X)
    The milk in the bottle.

14. The apples be not in the basket (X)
    The apples not in the basket.

15. No my brother went to school yesterday (X)
    My brother didn't go to school yesterday

16. The soldier strong (X)
    The soldier strong

17. I at home now (X)
I am at hom now.

18. No like these boys football (X)
The boys don't like football.

19. He is not write his homework in the afternoon (—)

20. That lazy pupil not can read well (X)
The lazy pupil can not read well.

21. Not go outside (X)
don't go outside

22. He the headmaster last year (X)
He was the headmaster last year.

23. Not study these pupils everyday (X)
These pupils don't study every day

24. She bright (X)
She is bright

25. He not work hard last year (X)
He didn't work hard last year.

26. They at the Youth Centre last Friday (X)
They were at the youth centre last friday.

27. He at the office now (X)
He is at the office now.

28. The nurse don't will go to the hospital (X)
The nurse will not go to the hospital

29. These men the scientists (X)
These man are the Scientists

30. It not bad last week (X)
It was not bad last week.

31. My sister not wrote a letter yesterday (X)
My sister did not write a letter yesterday

32. The garden beautiful last year (X)
The garden was beautiful last year.

33. The birds on the trees (X)
The birds are on the trees.

34. He the mechanic (X)
He is the Mechanic

3.

35. She no can draw a tree (X)
She cannot draw a tree

36. Not write anything (X)
don't write anything

37. I old (X)
I am old.

38. He will don't read this book (X)
He will not read this book.

39. She not want to drink (X)
She is not want to drink.

40. No wash the woman the dishes last night (X)
The woman did not wash the dishes last night

41. The teachers are not come to school everyday (X)
The teachers don't come to school everyday.

42. You on the farm last week (X)
You was on the farm last week.

43. He a worker in this factory last year (X)
He was a worker in this factory last year.

44. My father no helps me (X)
My father doesn't help me

45. That car new (X)
That car is new.

46. You not must sleep late (X)
You must not sleep late

47. It under the table (X)
It is under the table

48. No touch your noses (X)
don't touch your noses.

49. They clean last summer (X)
They were clean last summer.

50. He goes to school by bus ( )

51. He not will have history classes next year (X)
He will not have history classes next year.

4.

52. No can the men play every afternoon (X)
The men cannot play every afternoon.

53. Not speak Ali English (X)
Ali isn't speak English.

54. They no watch T.V. every night (X)
They didn't watch T.V every night.

55. His uncle be not the typist last year (X)
His uncle didn't be the typist last year.

56. You healthy (X)
You are healthy.

57. He was not have an egg for breakfast (X)
He didn't have an egg for breakfast

58. He not be in the bank yesterday (X)
He didn't be in the bank yesterday.

59. The tie not green (X)
is

60. His mother a teacher in this school last year (X)
was

61. The bicycle in the garden last night (X)
was

62. I a lawyer (X)
am

زهرة داود
الرابع - د -

A 9 RECOGNITION & CORRECTION/TIME THREE

Read each of these sentences carefully. If you think it is correct, put (√) between the brackets at the end of the sentence; if you think it is wrong, put (X) between the brackets and rewrite the sentence, correcting any mistake you find.

1. That woman the nurse (X)
   is
2. They are not can speak English (X)
   They can't speak English
3. The man a **lawyer** (X)
   The man is a lawyer
4. We not play football every afternoon (X)
   We don't play football
5. She poor last year (X)
   She was poor last year.
6. Not the pupils will go to school next week (X)
   The pupils will not go to school next week.
7. I not rich (X)
   I am not rich.
8. The butcher not sell bread (X)
   The butcher didn't sell bread
9. The dust on the mirrow (←)
10. No listen to the radio (X) أمرية
    don't listen to the radio
11. They work in that factory (X)
    They are work in that factory
12. You a teacher (X)
    You are a teacher.
13. No eat my father fish yesterday (X)
    my father didn't eat fish yesterday.
14. Layla don't must sit here (X)
    Layla must not sit her.
15. The money don't in the bank (X)
    The money isn't in the bank.

12

2.

16. The worker tired (X)
The worker was tired

17. No these boys want to swim (X)
The boys didnt want to swim

18. I at school now (X)
I am at school now.

19. He is not eat eggs every morning ( )

20. Not wash the dishes (X)
don't wash the dishes

21. That old man not can walk (X)
That old man cant walk.

22. He the secretary in this office last month (X)
He was the secretary in this office last month

23. She nice (X)
She is nice.

24. These girls no like football (X)
These girls didnt like football.

25. He in the classroom now (X)
He is

26. Not played my sister tennis yesterday (X)
My sister was not played tennis yesterday.

27. That man a grocer (X)
is

28. These girls not sad yesterday (X)
These girls didnt sad yesterday

29. The workers will don't go to the factory (X)
The workers will not go

30. The bottles on the table (X)
in

31. It not dangerous (X)
it is not

32. She a doctor (X)
is

3.

33. She no can use a dictionary (X)
she can not use a ↓

34. He not go to Basra last month (X)
He didn't go to Basra last month.

35. Not ask a question (X) ليس
don't ask ↓

36. I happy (X)
I am happy

37. She don't will study hard (X)
she will not study hard

38. The teachers are not write on the blackboard every lesson (⌣)

39. No sell a grocer furniture (X)
The grocer didn't sell furniture

40. The pupil not walk to school yesterday (X)
The pupil didn't walk to school ↓

41. She a pupil in this school last year (X)
was ↓ ↓ ↓ ↓ ↓

42. My father not teaches me English (X)
my father didn't teach me English

43. He cleans his teeth every morning (⌣)

44. No drink tea (X) ليس
don't drink tea

45. That chair strong (X)
That chair is strong

46. They not must eat that bad food (X)
They must not eat that bad food. 13

47. It in my room last night (X)
was ↓ ↓ ↓ ↓

48. She not will type the letters tomorrow (X)
She will not type the letters tomorrow

49. They thin last year (X)
They were thin last year.

4.

50. No can the ~~map~~ man help me (X)
The man can't help me.

51. You in my office now (X)
You are in my office now.

52. That man be not a teacher last year (X)
That man not to be a teacher last year.

53. You sick (X)
You are sick.

54. They in hospital last Monday (X)
They were in hospital last monday.

55. They not swim every afternoon (X)
They didn't swim every afternoon.

56. He was not draw a cat (✓)

57. They not be in Syria last month (X)
They were not be in syria last month

58. That man not buys a newspaper everyday (X)
That man didn't buys a newspaper everyday.

59. The dress not blue (X)
The dress is not blue.

60. His brother, a soldier (X)
is

61. The food, in the kitchen last night (X)
was

62. I, not an engineer (X)
am

RECOGNITION & CORRECTION / TIME FOUR

NAME..... YEAR.....

Read each of these sentences carefully. If you think it is correct, put (✓) between the brackets at the end of the sentence and leave it as it is; if you think it is wrong, put (X) between the brackets and rewrite the sentence, correcting any mistake you find.

1. She not can draw a tree.( )

2. That man a doctor.( )

3. My brother plays tennis everyday.( )

4. I at home now.( )

5. Not talk in the classroom.( )

6. A butcher not sells bread.( )

7. These pupils lazy.( )

8. The apples not in the basket.( )

9. Not he sleep well last night.( )

10. I a pupil.( )

11. Will not play the boys next week.( )

12. The books on the table.( )

13. We not play football every afternoon.( )

14. She is not eat eggs every morning.( )

15. He clever.( )

16. The house don't big.( )

17. They were not go to London last month.( )

18. His sister a nurse.( )

19. Give me that book, please.( )

20. They in the kitchen.( )

21. Not sit here.( )

22. They are not must eat that bad food.( )

23. Our garden beautiful.( )

24. He not a butcher.( )

25. My father not saw Ali last week.( )

26. They workers.( )

27. The workers will don't go to the factory next Monday.( )

28. The dog under the chair.( )

29. These boys are not swim everyday.( )

30. He can don't go now.( )

31. They happy.( )

32. Not my brother get up early every morning.( )

33. Not gave me the man the book yesterday.( )

34. My father a lawyer.( )

35. She arrived late yesterday.( )

36. You in my office now.( )

37. Not write on the wall.( )

38. He don't at the bank.( )

39. That man short.( )

40. My mother is not drink tea every afternoon.( )

41. The policeman was not stop our car yesterday.( )

42. He an engineer.( )

43. She not beautiful.( )

44. Selma at the office.( )

45. Not we like apples. ( )

46. My friend is not can play tennis.( )

47. I strong.( )

48. Not buy the man a newspaper everyday.( )

49. She not will arrive tomorrow.( )

50. These women teachers.( )

51. I will help you tomorrow.( )

52. He in the classroom.( )

53. Not listen to him.( )

54. That man don't a farmer.( )

55. That car new. ( )

56. Layla must don't play all the time.( )

57. Not can the old man walk.( )

58. You a student.( )

59. Not play in the road.( )

60. The milk in the bottle.( )

61. Not go these pupils to school on Fridays.( )

62. He is not will study history next year.( )

63. You rich. ( )

64. They are not drink milk every morning. ( )

APPENDIX A 11

ELICITED IMITATION

2nd Year

1. Don't speak. The old man cannot hear you.
2. These pupils are lazy. They do not study hard.
3. The girl did not see him. He was small.
4. He is a driver. He does not live here.
5. The boys cannot go. They do not have money.
6. I am not a teacher. I must not teach.
7. She is not at school. She is not at home.
8. The man is not rich. He is a butcher.
9. We must not eat it. It is not good.
10. John is the lawyer. He is not the thief.
11. Jack is in the garden. He is a boy.
12. I do not buy sweets. I do not like them.
13. He did not help me. I will not help him.
14. She is a doctor. She does not work here.
15. She cannot help you. She is not a nurse.
16. They will not do it. They do not know it.
17. The man is not a farmer. Don't ask him.
18. He does not like this fruit. It is an orange.
19. The house is not near the school. It is far.
20. You are lazy. I will not go with you.
21. I cannot read. My book is in your room.
22. Don't leave now. The teacher does not like it.
23. The book is on the table. Don't take it.
24. The boys do not play. They are tired.
25. The man was a teacher. He did not teach.
26. It is in the kitchen. It is a cat.
27. He does not run. His house is near the school.
28. He was at school. He was not in the class.
29. This book is bad. The boy must not read it.
30. It did not rain. We did not take a taxi.
31. Don't talk. The teacher is in the classroom.
32. He does not study. His friend must not help him.
33. She is not short. She is in the garden.
34. They will not work. The weather is bad.
35. This is the bag. The boy cannot carry it.
36. The men must not work. They are not strong.
37. The bus was slow. The boy did not catch it.

APPENDIX A 12

ELICITED IMITATION

12 Syllable Sentences — 3rd & 4th Years

1. Don't speak because the old man can not hear you.
2. These pupils are lazy because they do not study hard.
3. She did not see the child because he was small.
4. The man is a driver but he does not live here.
5. The men cannot go because they do not have money.
6. Because I am not a teacher I must not teach you.
7. The boy is not at school and he is not at home.
8. That man is not poor although he is a farmer.
9. We must not stop because we are not tired.
10. That man is the lawyer and he is not the thief.
11. I do not buy sweets because I do not like them.
12. The man is in the garden. He is a worker.
13. Layla did not help Zeki. He will not help her.
14. Selma is a doctor but she does not work here.
15. She cannot help you because she is not a nurse.
16. They will not come tomorrow because they do not know.
17. That man is not a farmer. Don't work with him.
18. She does not like this fruit because it is an orange.
19. Selma's house is not near her office. It is far.
20. Because you are lazy I will not teach you.
21. I cannot read because my book is in your room.
22. Don't leave today because the teacher does not like it.
23. The new pencil is on the table. Don't take it.
24. They do not work hard because they are tired.
25. He was a teacher but he did not teach English.
26. It is on my desk and it is a pencil.
27. He does not cross because his house is on this side.
28. The boy was at school but he was not in class.
29. Because this book is bad the boys must not read it.
30. Because it did not rain we did not take a taxi.
31. Don't talk because the teacher is in the classroom.
32. Because he does not study his friends must not help him.
33. My father is not ill. He is in his office.
34. They will not walk because the weather is bad.
35. This is the bag that the worker cannot carry.
36. You must not work hard because you are not strong.
37. The bus was slow but the pupils did not catch it.

APPENDIX A 13

ELICITED IMITATION

14-Syllable Sentences. Years 5 & 6. Sec.

1. Don't talk in a low voice because I cannot hear you.
2. As these boys are lazy they do not work very hard.
3. The woman did not see the child because he was small.
4. That man is a driver but he does not drive a lorry.
5. The pupils cannot go because they do not have enough time.
6. I am not a teacher therefore I must not teach anyone.
7. That boy is not poor although his father is a farmer.
8. The little girl is not at school and she is not at home.
9. The boys must not go out because the weather is not fine.
10. That tall woman is the teacher. She is not the doctor.
11. The children do not buy sweets because they do not like them.
12. My father is in Basra now and he is a lawyer.
13. Layla did not help me last week so I will not help her.
14. He is a mechanic but he does not work at this place
15. They will not tell him because they do not know anything.
16. The man is not a policeman; so don't ask him about it.
17. My brother does not like this fruit because it is an orange.
18. Selma's house is not near her office but it is big.
19. That woman cannot help you because she is not a nurse.
20. These workers are careless therefore I will not work with them.
21. The pupil cannot read because his book is in my room.
22. Don't make any noise because the teacher does not like it.
23. The book is on the table but don't put it in your bag.
24. People do not swim in winter because it is cold.
25. My father was a teacher but he did not teach English.
26. He is in the factory now and he is a worker.
27. He does not cross the road because his house is on this side.
28. Because this story is bad the pupils must not read it.
29. It did not rain this morning, so we did not take a taxi.
30. Don't say a word because the headmaster is in the room.
31. Because he does not study his sister must not help him.
32. Although I was at school I was not in the classroom.
33. My uncle's house is not new but it is on the river.
34. They will not leave today because the weather is bad.
35. I must not work very hard because I am not strong.
36. Although the bus was very slow the boy did not catch it.
37. This is the story that the boys cannot understand.

APPENDIX A.14

EXAMPLES FROM ELICITED IMITATION

A. Rephrasing parts of sentences preserving the meaning

1. M: Because he does not study his friend must not help him.
   R: Because he don't study his friend don't learn him. (S16, T1)

2. M: She does not like this fruit because it is an orange.
   R: She cannot eat this fruit because it's not orange. (S18, T2)*

3. M: Zaki must not work very hard because he is not well.
   R: Zaki must not work very hard because he was ill. (Ss17,44, T3)
   R: Zaki would not work very hard because he was ill. (Ss29,32, T3)
   R: Zaki must work very hard because he is well. (S40, T3)

4. M: He does not sell vegetables because he is a butcher.
   R: He does not sell meat because he's not a butcher. (S38, T2)

5. M: The boy must not go out because the weather is not fine.
   R: The boy must not go out because the weather is not right. (S37, T3)
   R: The boys must not go out because the weather isn't good. (S44, T3)

6. M: The man is a driver but he does not live here.
   R: The man is a driver but he's not here. (S19, T1)
   R: The man is a driver but he does not stay here. (S18, T1)

7. M: The men cannot go because they do not have money.
   R: That man he cannot go there because he have not time. (S3, T3)
   R: The men can't go because they don't have enough time. (S37, T1)
   R: The mens do not go because they have not money. (S22, T1)
   R: That man cannot go because he has no time. (S33, Ts1,3)
   R: The pupil cannot go because he haven't a lot of time. (S40, T1)

8. M: The pupil cannot read because his book is in your room.
   R: The pupil cannot read because his book isn't with him. (S52, T2)

9. M: People do not swim in winter because it is cold.
   R: People do not swim in winter because the weather is cold. (S52, T2)
   R: People do not swim in the river because the weather is cold. (S50, T2)

10. M: That tall woman is the teacher. She is not the doctor.
    R: That tall man is the teacher. He is not the doctor. (S41, T1)

11. M: Layla did not help me last week, so I will not help her.
    R: Layla did not help me last week. Well, I'm not help her. (S29, T2)

12. M: The bus was slow but the pupil did not catch it.
    R: The bus was slow but the pupil cannot take it. (S19, T1)

13. M: It did not rain this morning, so we did not take the bus.
    R: It did not rain this morning, so we don't need the bus. (S52, T1)
    R: If it did not rain this morning we don't need the bus. (S52, T2)
    R: It did not rain this morning so we did not have a bus. (Ss26,48, T3)

14. M: Selma is a doctor but she does not work here.
    R: Selma is a doctor but she is not here now. (S25, T1)

15. M: These pupils do not make mistakes because they are careful.
    R: These peoples are not make mistakes because they are ... they are good. (S46, T3)

B. <u>Imposing parallel constructions on conjoined sentences</u>

1. M: Layla did not help Zaki. He will not help her.
   R: Layla did not help Zaki. He did not help her. (S13, T2)
   R: Layla will not help Zaki. He won't help her. (Ss16,22,23, T1)
   R: Layla will not help Zaki. She will not help her. (S17, T1)

2. M: They will not come tomorrow because they do not know.
   R: They will not come tomorrow because they will not know. (S 19, T1)
   R: They don't come tomorrow because they ... (Ss20,35, T3)
   R: They don't come tomorrow because they don't know. (S37, T1)
   R: Some people did not come tomorrow because he didn't know. (Ss40,44, T3)

3. M: Because he does not study his sister must not help him.
   R: Because he does not study his sister does not help him. (S52, T1)

4. M: He is in the factory now and he is a worker.
   R: He is in the factory now and he is in the factory now. (S54, T1)

5. M: He does not sell bread because he is a butcher.
   R: He don't sell a bread because he don't a butcher. (S5, T3)

6. M: You must help me because I cannot carry it.
   R: You must help me because I must carry it. (S5, T3)

7. M: We must not stop now. We are not tired.
   R: We must not stop because you must not tired. (S1, T3)
   R: He must not stop now. He must not a tired. (S2, T3)

8. M: Zaki must not work hard because he is not well
   R: Zaki is not work hard because he is not work. (S3, T3)

9. M: Layla did not help me so I will not help her.
   R: Layla she is don't help me so I don't help her. (S3, T3)
   R: Layla did not help me so I did not help her. (S2, T3)
   R: Layla will not help me so I will not help her. (Ss13,18, T3)

10. M: She does not like this fruit because it is an orange.
    R: She is do not like this fruit because I don't like oranges. (S14, T2)

11. M: They will not do it. They do not know it.
    R: They will not do it. They will not do it. (S9, T2)

12. M: Because I am not a teacher I must not teach.
    R: Because I must not a teacher I must not teach. (S4, T3)

13. M: They will not come next week because they do not know.
    R: They will not come next week because they will not come. (S17, T3)
    R: Some people do not come next week because they do not know. (Ss25,26,28, T3)

14. M: My friend is not at school and he is not at home.
R: My friend is not in the school and he is not in the house. (S17, T3)

15. M: She cannot help you. She is not a nurse.
R: She cannot help you. She cannot a nurse. (S6, T2)

C. Inversion of the order of propositions

1. M: That tall woman is the teacher. She is not the doctor.
R: That tall woman is a doctor so she isn't the teacher. (S38, T3)

2. M: The boy is not at school and he is not at home.
R: The boys are not in the home and not in the school. (S16, T1)

3. M: They will not do it. They do not know it.
R: They did not know it. They will not do it. (S6, T2)
R: They do not know it. They do not ____. (S2, T2)
R: They do not know it. (S5, T2)

4. M: I do not buy sweets. I do not like them.
R: I do not like sweets. I do not ____. (S4, T2)

5. M: It is on the table and it is my pencil.
R: It is my pencil and it is my table. (S14, T2)

6. M: The little girl is not at school and she is not at home.
R: The little girl she is not at home and she is not at school. (S41, T2)

D. Imposing the structure of a previous sentence

1. M: Because I am not a teacher I must not teach.
R: Because I not teacher I must not a teach
M: He is not rich although he is an engineer.
R: He must not teach he must not engineer. (S2, T3)
R: He not rich although he must not engineer. (S4, T3)

2. M: She cannot help you because she is not a nurse.
R: She cannot help you because she is not a nurse.
M: They will not come tomorrow because they do not know.
R: They cannot come tomorrow because they do not know. (S12, T3)

3. M: We must not eat it. It is not good.
R: He must not eat. He must not ....
M: John is the lawyer. He is not the thief.
R: John is the lawyer. He must not .... (S3, T1)

E. Insertion

1. M: My father is in Basra now and he is a lawyer.
   R: My father he is in Basra now and he is a lawyer. (S 32, T1)

2. M: That man is not a policeman, so don't ask him about it.
   R: That man is not a policeman so I don't ask about it. (S 32, T1)
   R: That man did not a policeman so you don't ask him about it. (S40, T2)
   R: The man he is don't a policeman. He is don't ask ____. (S1, T2)

3. M: Because this story is bad the pupils must not read it.
   R: Because this story is bad therefore the pupil must not read it. (S38, T3)

F. Omission

1. M: He does not cross because his house is on this side.
   R: He does not cross because his house in this side. (S23, T1)

2. M: You must not stop because you are not tired.
   R: You must not stop because you not tired. (S19, T1)

3. M: That man is not a policeman, so don't ask him.
   R: That man not a policeman, so don't ask him. (S1, T3)

4. M: My uncle's house is not new but it is on the river.
   R: My uncle house is not new but it's on the river. (S19, T1)

5. M: Yousif is at home but he is not in his room.
   R: Yousif in at home but not in this room. (S3, T3)

6. M: She cannot help you because she is not a nurse.
   R: She cannot help you because she not nurse. (S1, T3)

7. M: Because I am not a teacher I must not teach.
   R: Because I not a teacher I must not a teach. (S2, T3)

8. M: He is not rich although he is an engineer.
   R: He is not a rich although he not an engineer. (S3, T3)

*T2 and T3 are referred to as T3 and T4 in the experiment.

APPENDIX

« B »

APPENDIX B

TABLE 1 The Subjects' Ages and Years of English

Subject	Age*	Yrs.** of E.	Normal N of Yrs.
1	13	5	3
2	14	3	3
3	13	4	3
4	13	3	3
5	13	5	3
6	13	5	3
7	13	5	3
8	13	4	3
9	12	3	3
10	13	3	3
11	13	3	3
12	12	5	3
13	13	6	4
14	15	4	4
15	12	4	4
16	13	4	4
17	13	4	4
18	14	5	4
19	14	8	4
20	14	6	4
21	14	6	4
22	13	8	4
23	14	4	4
24	14	4	4
25	14	5	5
26	14	5	5
27	16	5	5
28	15	5	5
29	14	5	5
30	14	5	5
31	15	5	5
32	14	6	5
33	14	6	5
34	15	5	5
35	15	5	5
36	15	5	5
37	16	6	6
38	16	6	6
39	16	6	6
40	15	10	6
41	16	6	6
42	16	6	6
43	16	6	6
44	16	6	6
45	15	10	6
46	14	6	6
47	16	9	6
48	16	6	6
49	16	7	7
50	18	7	7
51	17	7	7
52	16	7	7
53	17	7	7
54	17	7	7
55	17	7	7
56	17	7	7
57	17	7	7
58	17	9	7
59	16	7	7
60	16	7	7

* Age at the time of PE, i.e. seven months before the main experiment.

**The year the PE was carried out is included.

Mean = 14.7

APPENDIX B

TABLE 2 Learners' Overall Performance

Scores out of 60

Sub	Translation				Recognition and Correction				Elicited Imitation		
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3
1	16	19	23	43	10	9	10	21	26	26	17
2	29	28	38	43	28	26	32	36	32	18	24
3	17	24	31	33	14	15	17	22	18	14	14
4	22	15	25	31	21	9	14	22	28	22	26
5	20	31	34	42	26	17	18	29	24	22	20
6	28	34	41	44	23	25	X	35	32	30	30
7	32	36	38	49	18	25	26	29	29	35	28
8	15	9	12	14	7	12	17	13	6	8	7
9	15	24	23	36	19	21	30	29	20	34	15
10	0	0	0	0	1	0	0	7	3	13	5
11	10	9	X	17	9	5	X	11	1	5	1
12	0	0	1	0	0	0	0	0	2	9	4
13	33	37	34	36	29	34	28	37	23	34	37
14	3	2	3	9	7	10	5	20	6	6	9
15	46	49	47	50	40	46	52	49	40	46	51
16	52	45	44	X	42	48	51	X	26	28	X
17	44	43	43	44	29	34	43	48	28	30	38
18	43	40	X	49	30	33	23	35	26	36	42
19	34	33	34	39	29	31	34	34	32	X	42
20	39	42	44	45	33	39	44	38	21	X	30
21	31	27	28	34	28	26	35	28	27	X	37
22	48	40	37	X	39	39	35	X	30	X	X
23	56	59	59	X	59	57	60	X	53	X	X
24	15	11	17	29	8	7	16	12	12	X	23
25	52	52	X	54	48	45	50	46	41	55	47
26	51	54	53	57	43	34	42	40	42	54	51
27	49	50	46	56	43	49	45	52	35	37	45
28	53	53	49	59	52	53	53	54	28	45	40
29	46	54	51	57	37	43	45	46	30	34	34
30	57	55	56	60	51	54	56	58	47	55	53
31	36	41	43	43	35	34	37	42	22	X	12
32	33	30	37	43	32	X	38	35	16	X	24
33	51	51	49	49	48	48	52	50	40	42	47
34	33	30	33	37	17	29	34	27	24	27	11
35	40	40	43	47	45	36	35	42	30	37	33
36	44	43	44	48	39	X	46	47	24	X	30
37	39	44	44	42	30	36	43	38	34	37	41
38	57	48	52	53	51	52	52	55	44	45	45
39	60	60	59	60	59	60	60	60	56	57	58
40	20	32	33	38	24	24	23	29	19	27	23
41	38	44	37	45	28	35	42	34	42	42	42
42	50	53	47	51	44	50	53	49	37	48	46
43	52	47	51	53	56	53	52	47	40	X	42
44	48	53	52	52	51	52	56	52	X	X	33
45	56	X	55	X	57	59	58	X	37	X	X
46	51	51	46	52	50	50	46	52	34	X	43
47	49	47	X	50	50	48	X	51	34	X	38
48	46	X	37	47	40	44	43	43	38	X	41
49	36	40	38		31	43	41		26	21	
50	38	39	41		38	37	37		24	25	

TABLE 2 continued

Scores out of 60

Sub	Translation					Recognition and Correction					Elicited Imitation		
	T1	T2	T3	T4		T1	T2	T3	T4		T1	T2	T3
51	54	59	58			59	57	60			34	39	
52	58	X	56			60	58	60			40	45	
53	52	52	50			53	50	51			46	43	
54	54	58	51			55	55	56			20	24	
55	59	60	60			57	59	58			47	X	
56	48	47	48			51	51	56			25	30	
57	51	48	51			46	52	51			22	24	
58	60	60	60			59	60	60			58	58	
59	47	52	53			51	51	54			38	X	
60	54	52	49			52	55	54			37	X	

APPENDIX B

TABLE 3 Percentages of Subjects' Performance on the Copula Translation Task

Subjects	A			B		
	Time One			Time Two		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
1	38	63	38	75	63	38
2	100	100	75	100	100	75
3	63	38	38	50	88	50
4	50	63	38	75	63	25
5	50	50	25	75	100	75
6	63	63	38	100	63	88
7	100	100	100	100	100	88
8	63	75	38	63	38	38
9	88	88	38	75	75	50
10	00	00	00	00	00	00
11	50	50	25	25	50	25
12	00	13	00	00	00	00
13	75	75	63	88	75	75
14	00	00	26	00	00	00
15	100	100	75	100	100	75
16	100	100	100	100	100	100
17	100	100	100	100	100	100
18	100	100	100	100	100	100
19	100	100	88	100	100	100
20	100	100	63	100	100	75
21	100	100	100	100	63	100
22	100	100	88	100	100	75
23	100	100	100	100	100	100
24	38	63	38	50	25	25
25	100	100	100	100	100	88
26	100	100	100	100	100	100
27	100	100	100	100	100	100
28	100	100	100	100	100	100
29	100	100	75	100	100	88
30	100	100	100	100	100	100
31	100	100	75	100	100	88
32	100	100	100	100	88	88
33	100	100	88	100	100	100
34	100	75	50	50	63	50
35	100	100	100	100	100	75
36	100	100	100	100	100	88
37	100	88	100	100	100	100
38	100	100	100	100	100	100
39	100	100	100	100	100	100
40	63	63	38	100	88	75
41	100	88	63	100	100	100
42	100	100	100	100	100	100
43	100	100	100	100	100	100
44	100	100	100	100	100	100
45	100	100	100	X	X	X
46	100	100	100	100	100	100
47	100	100	100	100	100	100
48	100	100	88	X	X	X
49	100	88	38	100	100	100
50	100	100	100	100	100	88

TABLE 3 continued

Percentages of Subjects' Performance on the Copula Translation Task

A B

Subjects	Time One			Time Two		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
51	100	100	100	100	100	100
52	100	100	100	X	X	X
53	100	100	100	100	100	100
54	100	100	100	100	100	100
55	100	100	100	100	100	100
56	100	100	100	100	100	100
57	100	100	100	100	100	100
58	100	100	100	100	100	100
59	100	100	100	100	100	100
60	100	100	100	100	100	100

Translation Task

C D

Subjects	Time Three			Time Four		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
1	100	75	63	88	88	63
2	100	100	88	100	100	88
3	88	88	75	100	88	63
4	63	88	50	75	75	50
5	100	100	88	100	100	88
6	100	100	88	100	100	100
7	100	100	100	100	100	100
8	75	75	38	88	88	38
9	88	75	75	100	88	63
10	13	13	13	00	00	00
11	X	X	X	88	63	50
12	00	00	00	00	00	00
13	75	75	63	88	75	63
14	13	13	13	63	50	13
15	100	100	88	100	100	100
16	100	100	88	X	X	X
17	100	100	100	100	100	100
18	X	X	X	100	100	100
19	100	100	100	100	100	88
20	100	100	75	100	100	63
21	88	100	88	100	100	100
22	100	100	75	X	X	X
23	100	100	100	X	X	X
24	50	50	38	100	75	50
25	X	X	X	100	100	100
26	100	100	88	100	100	100
27	100	100	100	100	100	88
28	100	100	100	100	100	100
29	100	100	100	100	100	100
30	100	100	100	100	100	100
31	100	100	100	100	100	88
32	100	100	100	100	100	100

TABLE 3 continued

Percentages of Subjects' Performance on the Copula Translation Task

Subjects	C			D		
	Time Three			Time Four		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
33	100	100	100	100	100	100
34	100	63	63	88	88	50
35	100	100	75	100	100	100
36	100	100	100	100	100	100
37	100	100	100	100	100	88
38	100	100	100	100	100	100
39	100	100	100	100	100	100
40	100	100	100	100	88	75
41	100	100	100	100	100	88
42	100	100	100	100	100	100
43	100	100	100	100	100	100
44	100	100	100	100	100	100
45	100	100	100	X	X	X
46	100	100	100	100	100	100
47	X	X	X	100	100	100
48	100	100	75	100	100	63
49	100	100	100			
50	100	100	100			
51	100	100	100			
52	100	100	100			
53	100	100	100			
54	100	100	100			
55	100	100	100			
56	100	100	100			
57	100	100	100			
58	100	100	100			
59	100	100	100			
60	100	100	100			

APPENDIX B

TABLE 4 Percentages of Subjects' Performance on the Copula RC Task

Subjects	A			B		
	Time One			Time Two		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
1	17	17	33	13	13	00
2	63	75	63	63	88	100
3	75	63	25	88	50	25
4	50	75	00	13	13	00
5	25	75	25	75	50	38
6	75	75	63	88	63	75
7	63	63	38	88	75	50
8	63	25	00	50	25	25
9	88	50	50	50	63	25
10	00	00	00	13	00	00
11	50	25	00	13	13	00
12	00	00	00	00	00	00
13	75	100	50	75	86	75
14	13	50	13	38	25	38
15	88	88	63	100	88	75
16	100	88	88	100	100	100
17	100	88	100	88	88	88
18	100	88	63	75	88	63
19	100	88	100	100	100	100
20	100	100	25	100	100	38
21	75	100	38	86	88	50
22	88	100	63	75	88	50
23	100	100	100	100	100	100
24	25	63	25	50	25	13
25	100	100	100	100	100	75
26	75	100	100	100	100	100
27	100	100	88	100	100	100
28	100	100	88	100	100	100
29	88	100	25	100	88	100
30	100	100	100	100	100	100
31	100	100	75	100	100	71
32	100	88	100	X	X	X
33	100	100	88	100	88	100
34	38	38	13	88	88	13
35	100	100	50	100	100	63
36	100	100	50	X	X	X
37	85	86	50	100	75	100
38	100	100	100	100	100	100
39	100	100	100	100	100	100
40	75	75	13	86	75	38
41	63	63	63	88	100	100
42	100	100	75	100	100	100
43	100	100	100	100	100	100
44	100	100	88	100	100	100
45	100	100	100	100	88	100
46	100	100	88	100	100	100
47	100	88	75	100	100	75
48	100	86	50	100	100	88
49	100	100	50	100	100	100
50	100	100	100	100	100	100

TABLE 4 continued

Percentages of Subjects' Performance on the Copula

RC Task

A B

Subjects	Time One			Time Two		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
51	100	100	100	100	100	100
52	100	100	100	100	100	100
53	100	100	100	100	100	100
54	100	100	100	100	100	100
55	100	100	100	100	100	100
56	100	100	88	100	100	100
57	100	100	88	100	100	100
58	100	100	100	100	100	100
59	100	100	100	100	100	100
60	100	100	100	100	100	100

RC Task

C D

Subjects	Time Three			Time Four		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
1	38	38	17	88	88	38
2	88	75	63	100	100	63
3	71	43	50	50	100	50
4	25	25	00	50	75	13
5	50	86	13	75	75	50
6	75	100	75	100	100	88
7	100	100	88	100	100	50
8	63	50	50	75	75	00
9	75	86	63	63	75	50
10	00	00	00	25	13	13
11	X	X	X	63	50	25
12	00	00	00	00	00	00
13	50	71	75	88	88	88
14	13	13	13	75	63	38
15	100	100	100	100	100	100
16	100	100	100	X	X	X
17	100	100	100	100	100	100
18	43	86	50	100	100	75
19	100	100	100	100	100	100
20	100	100	88	100	100	50
21	100	86	75	100	100	63
22	75	43	63	X	X	X
23	100	100	100	X	X	X
24	75	25	25	63	63	25
25	100	100	88	100	100	75
26	100	100	100	100	100	100
27	100	100	75	100	100	88
28	100	100	100	100	100	100
29	100	86	88	100	100	88
30	100	100	100	100	100	100

TABLE 4 continued

Percentages of Subjects' Performance on the Copula

RC Task

Subjects	C			D		
	Time Three			Time Four		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
31	100	100	75	100	100	50
32	100	86	88	100	88	63
33	100	100	100	100	100	100
34	100	100	50	88	100	63
35	100	100	53	100	100	88
36	100	100	100	100	100	100
37	100	100	75	100	100	88
38	100	100	100	100	100	100
39	100	100	100	100	100	100
40	71	57	25	88	88	50
41	100	100	100	100	100	75
42	100	100	100	100	100	100
43	100	100	100	100	100	100
44	100	100	88	100	100	100
45	100	100	100	X	X	X
46	100	100	100	100	100	100
47	X	X	X	100	88	100
48	100	100	75	100	100	50
49	100	100	75			
50	100	86	100			
51	100	100	100			
52	100	100	100			
53	100	100	100			
54	100	100	100			
55	100	100	100			
56	100	100	100			
57	100	86	100			
58	100	100	100			
59	100	100	100			
60	100	100	100			

APPENDIX B

TABLE 5 Percentages of Subjects' Performance on the Copula Elicited Imitation Task

Subjects	A			B		
	Time One			Time Two		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
1	100	63	63	86	50	50
2	89	50	75	56	50	25
3	89	13	88	63	63	50
4	89	50	63	75	63	75
5	89	50	50	89	25	25
6	67	38	88	78	25	100
7	78	38	71	89	50	50
8	22	13	13	44	13	25
9	67	38	63	100	63	50
10	22	00	00	67	25	38
11	11	00	00	44	13	13
12	11	00	00	56	38	00
13	89	63	50	75	88	43
14	56	13	13	56	00	13
15	89	75	63	89	88	88
16	89	100	50	89	100	50
17	89	88	50	100	100	75
18	89	88	75	100	100	88
19	89	88	71	X	X	X
20	78	50	25	X	X	X
21	63	38	38	X	X	X
22	67	100	75	X	X	X
23	100	88	88	X	X	X
24	56	38	13	X	X	X
25	100	100	63	100	100	100
26	100	88	88	100	100	88
27	89	63	75	89	88	63
28	89	100	75	100	88	63
29	89	75	75	100	100	88
30	89	88	88	100	88	88
31	67	50	13	X	X	X
32	67	38	63	X	X	X
33	100	75	63	89	75	88
34	78	63	38	89	75	25
35	89	100	63	100	88	38
36	89	88	50	X	X	X
37	67	100	75	78	100	75
38	100	100	75	100	75	88
39	100	100	100	100	100	100
40	89	63	50	100	71	50
41	100	100	63	89	100	43
42	100	88	75	89	88	88
43	89	88	88	X	X	X
44	X	X	X	X	X	X
45	89	88	50	X	X	X
46	89	100	88	X	X	X
47	100	100	75	X	X	X
48	89	88	25	X	X	X
49	100	63	50	100	100	50
50	100	75	50	75	50	50

TABLE 5 continued

Percentages of Subjects' Performance on the Copula Elicited Imitation Task

	A			B		
Subjects	Time One			Time Three		
	Pre-N	Pre-Adj	Pre-Loc	Pre-N	Pre-Adj	Pre-Loc
51	100	63	50	100	75	88
52	88	88	100	89	88	88
53	100	88	88	100	75	88
54	89	75	75	100	88	75
55	100	88	88	X	X	X
56	89	75	63	78	75	75
57	89	88	63	89	88	63
58	100	100	100	100	100	75
59	89	88	75	X	X	X
60	100	75	63	X	X	X

	C		
Subjects	Time Four		
	Pre-N	Pre-Adj	Pre-Loc
1	88	63	38
2	75	75	50
3	88	75	50
4	75	63	63
5	63	38	38
6	75	63	75
7	88	63	63
8	50	25	38
9	88	50	38
10	50	13	00
11	13	00	00
12	63	00	00
13	88	88	75
14	63	13	13
15	100	100	75
16	X	X	X
17	100	88	75
18	100	88	88
19	100	88	88
20	100	75	50
21	88	75	63
22	X	X	X
23	X	X	X
24	100	38	38
25	100	75	100
26	100	88	100
27	88	88	75
28	100	88	88
29	100	88	75
30	100	100	75

TABLE 5 continued

Percentages of Subjects' Performance on the Copula Elicited Imitation Task

C

Subjects	Time Four		
	Pre-N	Pre-Adj	Pre-Loc
31	75	38	50
32	100	50	63
33	100	88	88
34	100	50	25
35	100	75	63
36	100	88	63
37	100	100	75
38	100	63	100
39	100	100	100
40	88	63	75
41	100	75	63
42	100	100	100
43	88	75	100
44	100	75	63
45	X	X	X
46	100	100	100
47	100	100	88
48	88	88	63

APPENDIX B

TABLE 6 Implicational Scale Copula Reduction

Translation Time One

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
10	0	0	0
14	0	0	26
12	0	13	0
1	38	63	38
24	38	63	38
5	50	50	25
11	50	50	25
4	50	63	38
3	63	38	38
40	63	63	38
6	63	63	63
8	63	75	38
13	75	75	63
9	88	88	38
34	100	75	50
41	100	88	63
49	100	88	88
30	100	88	100
37	100	88	100
20	100	100	63
2	100	100	75
15	100	100	75
29	100	100	75
31	100	100	75
19	100	100	88
22	100	100	88
33	100	100	88
48	100	100	88
7	100	100	100
16	100	100	100
17	100	100	100
18	100	100	100
21	100	100	100
23	100	100	100
25	100	100	100
26	100	100	100
27	100	100	100
28	100	100	100
32	100	100	100
35	100	100	100
36	100	100	100
38	100	100	100
39	100	100	100
42	100	100	100
43	100	100	100
44	100	100	100
45	100	100	100
46	100	100	100
47	100	100	100
50	100	100	100

TABLE 7 Implicational Scale Copula Reduction

Translation Time Two

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
10	0	0	0
12	0	0	0
14	0	0	13
11	25	50	25
24	50	25	25
34	50	63	50
3	50	88	50
8	63	38	38
4	75	63	25
1	75	63	38
9	75	75	50
5	75	100	75
13	88	75	75
6	100	63	88
21	100	63	100
40	100	88	75
32	100	88	88
2	100	100	75
15	100	100	75
20	100	100	75
22	100	100	75
35	100	100	75
7	100	100	88
25	100	100	88
29	100	100	88
31	100	100	88
36	100	100	88
50	100	100	88
16	100	100	100
17	100	100	100
18	100	100	100
19	100	100	100
23	100	100	100
26	100	100	100
27	100	100	100
28	100	100	100
30	100	100	100
33	100	100	100
37	100	100	100
38	100	100	100
39	100	100	100
41	100	100	100
42	100	100	100
43	100	100	100
44	100	100	100
45	X	X	X
46	100	100	100
47	100	100	100
48	X	X	X
49	100	100	100

Table 6 continued

Implicational Scale
Copula Reduction

Translation Time One

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
51	100	100	100
52	100	100	100
53	100	100	100
54	100	100	100
55	100	100	100
56	100	100	100
57	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100

TABLE 7 continued

Implicational Scale
Copula Reduction

Translation Time Two

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
51	100	100	100
52	X	X	X
53	100	100	100
54	100	100	100
55	100	100	100
56	100	100	100
57	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100

APPENDIX B

TABLE 8 Implicational Scale Copula Reduction

Translation Time Three

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
12	0	0	0
10	13	13	13
14	13	13	13
11	X	X	X
24	50	50	38
4	63	88	50
8	75	75	38
13	75	75	63
9	88	75	75
3	88	88	75
21	88	100	88
34	100	63	63
1	100	75	63
20	100	100	75
22	100	100	75
35	100	100	75
48	100	100	75
2	100	100	88
5	100	100	88
6	100	100	88
15	100	100	88
16	100	100	88
26	100	100	88
25	X	X	X
27	100	100	88
31	100	100	88
40	100	100	88
43	100	100	88
49	100	100	88
18	X	X	X
37	100	100	88
7	100	100	100
17	100	100	100
19	100	100	100
23	100	100	100
28	100	100	100
29	100	100	100
30	100	100	100
32	100	100	100
33	100	100	100
36	100	100	100
38	100	100	100
39	100	100	100
41	100	100	100
42	100	100	100
44	100	100	100
45	100	100	100
46	100	100	100
50	100	100	100

TABLE 9 Implicational Scale Copula Reduction

RC Time One

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
10	0	0	0
12	0	0	0
14	13	50	13
1	17	17	33
24	25	63	25
5	25	75	25
34	38	38	13
11	50	25	0
4	50	75	0
8	63	25	0
7	63	63	38
41	63	63	63
2	63	75	63
3	75	63	25
40	75	75	13
6	75	75	63
21	75	100	38
13	75	100	50
26	75	100	100
9	88	50	50
37	85	86	50
15	88	88	63
29	88	100	25
22	88	100	63
48	100	86	50
18	100	88	63
47	100	88	75
16	100	88	88
17	100	88	100
19	100	88	100
32	100	88	100
20	100	100	25
35	100	100	50
36	100	100	50
49	100	100	50
31	100	100	75
42	100	100	75
27	100	100	88
28	100	100	88
33	100	100	88
44	100	100	88
46	100	100	88
56	100	100	88
57	100	100	88
23	100	100	100
25	100	100	100
30	100	100	100
38	100	100	100
39	100	100	100

TABLE 8 continued

Implicational Scale
Copula Reduction

Translation Time Three

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
51	100	100	100
52	100	100	100
53	100	100	100
54	100	100	100
55	100	100	100
56	100	100	100
57	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100
47	X	X	X

TABLE 9 continued

Implicational Scale
Copula Reduction

RC Time One

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
43	100	100	100
45	100	100	100
50	100	100	100
51	100	100	100
52	100	100	100
53	100	100	100
54	100	100	100
55	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100

APPENDIX B

TABLE 10 Implicational Scale Copula Reduction

RC Time Two

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
12	0	0	0
10	13	0	0
1	13	13	0
4	13	13	0
11	13	13	0
14	38	25	38
24	50	25	13
8	50	25	25
9	50	63	25
2	63	88	100
5	75	50	38
13	75	86	75
22	75	88	50
18	75	88	63
3	88	50	25
6	88	63	75
40	86	75	38
7	88	75	50
34	88	88	13
21	88	88	50
17	88	88	88
41	88	100	100
37	100	75	100
15	100	88	75
29	100	88	100
33	100	88	100
45	100	88	100
20	100	100	38
35	100	100	63
31	100	100	71
32	X	X	X
25	100	100	75
47	100	100	75
36	X	X	X
48	100	100	88
16	100	100	100
19	100	100	100
23	100	100	100
26	100	100	100
27	100	100	100
28	100	100	100
30	100	100	100
38	100	100	100
39	100	100	100
42	100	100	100
43	100	100	100
44	100	100	100
46	100	100	100
49	100	100	100
50	100	100	100

TABLE 11 Implicational Scale Copula Reduction

RC Time Three

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
10	0	0	0
12	0	0	0
14	13	13	13
4	25	25	0
11	X	X	X
1	38	38	17
18	43	86	50
13	50	71	75
5	50	86	13
8	63	50	50
3	71	43	50
40	71	57	25
24	75	25	25
22	75	43	63
9	75	86	63
6	75	100	75
2	88	75	63
21	100	86	75
29	100	86	88
32	100	86	88
50	100	86	100
57	100	86	100
34	100	100	50
35	100	100	53
27	100	100	75
31	100	100	75
37	100	100	75
48	100	100	75
49	100	100	75
7	100	100	88
20	100	100	88
25	100	100	88
47	X	X	X
44	100	100	88
15	100	100	100
16	100	100	100
17	100	100	100
19	100	100	100
23	100	100	100
26	100	100	100
28	100	100	100
30	100	100	100
33	100	100	100
36	100	100	100
38	100	100	100
39	100	100	100
41	100	100	100
42	100	100	100
43	100	100	100
45	100	100	100

TABLE 10 continued

Implicational Scale
Copula Reduction

RE Time Two

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
51	100	100	100
52	100	100	100
53	100	100	100
54	100	100	100
55	100	100	100
56	100	100	100
57	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100

TABLE 11 continued

Implicational Scale
Copula Reduction

RC Time Three

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
46	100	100	100
51	100	100	100
52	100	100	100
53	100	100	100
54	100	100	100
55	100	100	100
56	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100

APPENDIX B

TABLE 12 Implicational Scale Copula Reduction

Elicited Imitation Time One

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
11	11	0	0
12	11	0	0
10	22	0	0
8	22	13	13
14	56	13	13
24	56	38	13
21	63	38	38
9	67	38	63
32	67	38	63
6	67	38	88
31	67	50	13
22	67	100	75
37	67	100	75
7	78	38	71
20	78	50	25
34	78	63	38
3	89	63	88
5	89	50	50
4	89	50	63
2	89	50	75
13	89	63	50
40	89	63	50
27	89	63	75
15	89	75	63
56	89	75	63
29	89	75	75
54	89	75	75
48	89	88	25
17	89	88	50
36	89	88	50
45	89	88	50
57	89	88	63
19	89	88	71
18	89	88	75
59	89	88	75
30	89	88	88
43	89	88	88
52	88	88	100
16	89	100	50
35	89	100	63
28	89	100	75
46	89	100	88
49	100	63	50
51	100	63	50
1	100	63	63
50	100	75	50
33	100	75	63
60	100	75	63
42	100	88	75
23	100	88	88

TABLE 13 Implicational Scale Copula Reduction

Elicited Imitation Time Three

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
11	44	13	13
8	44	13	25
14	56	0	13
12	56	38	0
2	56	50	25
3	63	63	50
10	67	25	38
50	75	50	50
4	75	63	75
13	75	88	43
6	78	25	100
56	78	75	75
37	78	100	75
1	86	50	50
5	89	25	25
7	89	50	50
34	89	75	25
33	89	75	88
27	89	88	63
57	89	88	63
15	89	88	88
42	89	88	88
52	89	88	88
41	89	100	43
16	89	100	60
9	100	63	50
40	100	71	50
38	100	75	88
51	100	75	88
53	100	75	88
35	100	88	38
54	100	88	75
30	100	88	88
49	100	100	50
28	100	100	63
17	100	100	75
58	100	100	75
18	100	100	88
26	100	100	88
29	100	100	88
25	100	100	100
39	100	100	100

TABLE 12 continued

Implicational Scale
Copula Reduction

Elicited Imitation Time One

Subjects	Pre-Nom	Pre-Adj	Pre-Loc
26	100	88	88
53	100	88	88
55	100	88	88
25	100	100	63
41	100	100	63
38	100	100	75
47	100	100	75
39	100	100	100
58	100	100	100
44	X	X	X

APPENDIX B

TABLE 14 Percentages of Subjects' Performance on Negation

Translation Task

Subjects	A Time One					B Time Two				
	modals	copula	do	did	does	modals	copula	do	did	does
1	70	14	22	00	00	40	00	11	00	00
2	70	100	00	00	00	36	86	00	00	00
3	50	00	100	00	00	45	57	78	00	00
4	60	00	67	00	00	27	57	22	00	00
5	70	14	22	00	00	45	43	56	00	00
6	60	29	44	60	00	45	57	33	40	00
7	30	00	89	00	00	18	57	86	00	00
8	00	00	00	00	00	00	00	22	00	00
9	30	14	89	100	00	36	00	100	00	00
10	00	00	00	00	00	00	00	00	00	00
11	00	00	00	00	00	00	00	00	00	00
12	00	00	00	00	00	00	00	00	00	00
13	50	14	67	80	00	54	57	56	40	25
14	00	00	22	00	00	00	00	00	00	00
15	100	100	67	00	00	100	100	56	80	00
16	80	100	89	80	00	55	100	56	60	00
17	70	100	67	00	00	55	86	89	00	00
18	50	71	100	00	20	45	86	56	40	00
19	60	71	00	00	00	36	71	00	00	00
20	70	100	56	00	00	73	100	44	00	25
21	30	71	00	00	00	36	75	00	00	00
22	100	86	78	00	80	100	57	44	00	00
23	80	100	100	100	60	100	100	89	100	100
24	10	14	78	00	00	9	43	44	00	00
25	70	83	100	60	25	100	86	89	60	25
26	90	100	78	20	60	91	100	78	40	75
27	100	57	67	100	00	91	100	67	80	00
28	100	86	100	100	00	91	100	67	80	50
29	90	86	67	60	00	100	71	78	80	100
30	100	71	100	100	100	100	57	89	80	100
31	40	14	89	00	60	60	43	100	00	40
32	20	29	00	100	00	60	57	33	60	00
33	100	100	78	100	00	100	100	56	60	00
34	80	14	33	00	40	55	29	56	100	00
35	40	71	56	80	00	36	100	56	40	00
36	70	100	44	40	00	55	100	67	40	00
37	70	71	67	00	00	60	100	56	00	25
38	100	100	100	80	60	100	100	78	60	00
39	100	100	100	100	100	100	100	100	100	100
40	50	29	11	00	00	27	43	56	00	00
41	70	57	89	00	00	82	86	67	00	00
42	80	43	100	100	40	100	83	56	100	75
43	80	86	100	80	20	55	86	56	40	75
44	70	86	67	60	60	91	100	67	100	25
45	100	100	100	80	40	X	X	X	X	X
46	100	100	56	80	20	100	100	56	80	00
47	70	100	56	40	80	55	100	56	100	00
48	80	43	78	60	00	X	X	X	X	X
49	70	71	33	00	00	64	86	00	80	00

TABLE 14 continued

Percentages of Subjects' Performance on Negation

Translation Task

A B

Subjects	Time One					Time Two				
	modals	copula	do	did	does	modals	copula	do	did	does
50	80	100	00	00	00	91	100	00	00	00
51	90	100	89	20	100	100	100	100	100	100
52	100	100	100	100	80	X	X	X	X	X
53	90	100	89	40	40	73	100	89	40	75
54	80	86	89	80	80	100	86	100	80	100
55	100	100	100	100	80	100	100	100	100	100
56	70	71	89	100	00	64	86	89	60	00
57	60	86	67	100	80	45	86	67	60	100
58	100	100	100	100	100	100	100	100	100	100
59	100	100	56	60	00	100	100	56	100	00
60	100	100	100	100	00	82	100	100	60	25

Translation Task

C D

Subjects	Time Three					Time Four				
	modals	copula	do	did	does	modals	copula	do	did	does
1	60	14	00	00	00	100	50	80	20	00
2	50	71	67	00	00	90	100	50	00	00
3	40	29	100	00	00	70	00	100	00	00
4	60	43	33	00	00	100	17	70	00	20
5	40	43	100	00	00	100	33	80	20	00
6	40	86	89	00	00	80	100	60	20	00
7	30	100	56	00	00	90	33	80	00	20
8	00	00	11	00	00	10	50	00	00	00
9	40	14	100	00	00	60	17	100	00	00
10	00	00	00	00	00	00	00	00	00	00
11	X	X	X	X	X	30	00	00	00	00
12	00	00	00	00	00	00	00	00	00	00
13	60	57	78	00	00	100	67	50	00	00
14	00	00	00	00	00	00	30	30	00	00
15	100	100	56	50	00	100	70	70	100	00
16	60	100	56	75	00	X	X	X	X	X
17	60	100	56	00	00	80	100	80	00	00
18	X	X	X	X	X	100	100	60	20	00
19	40	86	00	00	00	90	100	00	00	00
20	90	100	44	00	67	100	87	50	40	20
21	20	71	00	00	00	50	00	80	00	00
22	90	43	44	00	00	X	X	X	X	X
23	90	100	100	100	100	X	X	X	X	X
24	30	29	78	00	00	30	33	80	00	00
25	X	X	X	X	X	100	67	80	80	80
26	90	86	78	40	100	90	100	80	100	100
27	70	86	78	75	33	90	100	90	100	80
28	70	71	78	75	50	100	100	100	100	80
29	70	86	67	50	100	100	100	80	100	100

TABLE 14 continued

Percentages of Subjects' Performance on Negation

	Translation Task									
	C					D				
Subjects	Time Three					Time Four				
	modals	copula	do	did	does	modals	copula	do	did	does
30	100	71	89	100	83	100	100	100	100	100
31	40	57	78	00	83	40	100	80	00	00
32	40	43	00	50	00	70	50	90	40	00
33	60	100	100	50	00	100	100	100	00	00
34	60	29	44	25	00	80	67	60	00	00
35	50	86	89	25	20	70	100	60	00	00
36	60	100	67	25	17	100	100	50	80	00
37	100	100	44	00	00	100	83	60	40	00
38	100	100	78	75	17	100	100	70	100	20
39	100	100	100	100	100	100	100	100	100	100
40	43	50	33	00	00	80	50	40	80	00
41	60	100	11	00	00	100	100	60	00	00
42	60	100	56	100	00	100	67	70	80	60
43	60	100	75	100	25	90	100	80	100	50
44	100	100	78	50	33	100	100	70	100	00
45	70	100	100	50	100	X	X	X	X	X
46	100	100	44	00	17	100	100	70	80	60
47	X	X	X	X	X	100	100	70	80	00
48	60	43	56	25	00	100	67	80	100	00
49	90	100	00	00	00					
50	100	100	00	00	00					
51	100	100	100	50	100					
52	100	100	100	100	100					
53	78	100	100	25	17					
54	60	100	78	25	100					
55	100	100	100	100	100					
56	60	100	100	50	17					
57	60	100	67	50	83					
58	100	100	100	100	100					
59	100	100	67	100	33					
60	70	100	100	50	00					

APPENDIX B

TABLE 15 Percentages of Subjects' Performance on Negation

RC Task

Subjects	A					B				
	Time One					Time Two				
	modals	copula	do	did	does	modals	copula	do	did	does
1	44	00	13	00	00	60	00	11	00	00
2	40	71	00	00	00	40	43	00	00	00
3	20	29	11	00	00	10	00	00	00	00
4	80	29	11	00	00	70	29	00	00	00
5	90	43	11	00	00	80	29	00	00	00
6	50	43	00	00	00	30	43	00	00	00
7	20	29	00	00	00	20	71	00	20	00
8	00	29	00	00	00	00	43	00	00	00
9	30	43	00	00	00	100	14	11	00	00
10	00	00	00	00	00	00	00	00	00	00
11	30	29	00	00	00	30	14	00	00	00
12	00	00	00	00	00	00	00	00	00	00
13	80	14	11	20	00	90	57	22	20	00
14	10	14	00	00	00	00	29	00	00	00
15	70	57	56	60	20	100	100	56	60	00
16	90	86	33	60	00	90	100	44	80	00
17	30	57	11	00	00	60	86	22	00	00
18	50	71	00	00	00	90	86	00	00	20
19	50	43	00	00	00	30	43	00	00	00
20	100	43	44	40	00	100	43	44	60	00
21	50	71	00	00	00	60	57	00	00	00
22	90	86	56	00	00	100	100	44	00	20
23	100	100	100	100	100	100	86	100	100	80
24	20	00	22	00	00	00	29	00	00	00
25	100	71	78	80	40	100	86	56	40	00
26	80	71	33	60	60	30	57	11	20	20
27	100	71	44	60	00	100	57	78	100	20
28	100	86	56	100	40	90	86	78	80	40
29	90	43	67	20	00	70	71	56	40	20
30	100	100	56	00	100	100	86	67	100	60
31	50	57	22	00	00	90	57	33	00	20
32	100	43	00	60	00	X	X	X	X	X
33	100	100	78	60	20	100	100	63	80	00
34	50	43	00	00	40	90	43	00	00	00
35	80	57	89	80	00	60	57	50	20	20
36	100	100	33	00	00	X	X	X	X	X
37	70	14	44	00	00	70	57	38	20	00
38	100	100	56	60	40	100	100	44	80	60
39	100	100	100	100	80	100	100	100	100	100
40	70	43	11	00	00	70	29	00	00	00
41	80	14	33	00	00	80	71	00	00	00
42	100	57	67	20	60	100	100	67	40	20
43	100	86	78	80	100	100	86	78	80	60
44	90	86	78	60	60	90	100	67	80	40
45	100	100	89	80	80	90	100	100	100	100
46	100	100	56	20	60	100	100	44	80	20
47	100	71	78	60	80	100	86	44	100	20

TABLE 15 continued

Percentages of Subjects' Performance on Negation

RC Task

A B

Subjects	Time One					Time Two				
	modals	copula	do	did	does	modals	copula	do	did	does
48	80	43	78	40	00	100	86	44	60	00
49	60	71	00	00	00	100	100	00	40	00
50	100	57	00	00	00	80	100	00	00	100
51	100	100	100	60	100	100	100	100	60	100
52	100	100	100	100	100	100	100	100	100	100
53	100	100	56	60	80	100	100	75	60	20
54	100	71	89	80	80	100	100	89	80	80
55	90	100	100	100	80	100	100	100	100	80
56	90	71	56	80	80	100	71	78	80	20
57	90	71	22	60	60	90	100	56	80	80
58	100	100	100	100	100	100	100	100	100	100
59	90	100	57	100	20	100	100	44	60	00
60	80	100	67	80	60	90	100	100	80	40

RC Task

C D

Subjects	Time Three					Time Four				
	modals	copula	do	did	does	modals	copula	do	did	does
1	20	13	00	00	00	70	17	00	00	00
2	60	38	44	00	00	90	100	00	00	00
3	20	25	22	00	00	40	33	10	00	00
4	90	25	22	00	17	90	33	10	00	00
5	70	13	22	00	00	80	00	50	00	00
6	60	75	00	00	00	100	33	00	00	00
7	10	38	00	00	00	70	33	00	00	00
8	00	50	00	00	00	00	17	00	00	00
9	90	38	33	00	00	40	17	40	00	00
10	00	00	00	00	00	10	17	00	00	00
11	X	X	X	X	X	00	17	00	00	00
12	00	00	00	00	00	00	00	00	00	00
13	80	38	00	20	00	90	83	10	00	00
14	00	25	00	00	00	10	33	50	00	00
15	100	88	67	80	20	100	100	60	60	00
16	100	100	44	80	40	X	X	X	X	X
17	90	100	33	00	00	100	83	50	20	00
18	70	38	00	00	00	80	83	00	00	00
19	50	88	00	00	00	70	50	00	00	00
20	100	100	44	00	40	80	83	50	00	00
21	80	100	00	00	00	30	50	00	00	00
22	90	43	44	80	20	X	X	X	X	X
23	100	100	100	100	100	X	X	X	X	X
24	30	43	00	00	00	00	33	00	00	00
25	100	88	67	40	40	100	17	70	80	00
26	60	100	00	40	20	100	50	50	00	40
27	100	75	56	60	00	100	100	70	100	20

TABLE 15 continued

Percentages of Subjects' Performance on Negation

RC Task

Subjects	C					D				
	Time Three					Time Four				
	modals	copula	do	did	does	modals	copula	do	did	does
28	100	100	56	100	40	100	100	70	100	80
29	90	100	56	20	20	100	83	70	00	20
30	100	100	78	80	60	100	83	100	100	80
31	60	100	44	00	00	60	67	90	00	60
32	90	38	00	60	00	90	33	40	00	60
33	100	100	78	80	00	100	100	70	60	00
34	90	50	44	00	00	40	33	00	00	00
35	60	63	45	00	00	60	83	60	00	00
36	100	88	56	00	00	100	100	70	00	00
37	100	88	44	00	20	60	83	40	00	00
38	100	88	78	80	60	100	100	70	100	80
39	100	100	100	100	100	100	100	100	100	100
40	70	50	00	00	00	70	50	10	00	00
41	100	88	11	00	00	90	50	00	00	00
42	100	100	56	80	40	100	67	60	60	40
43	100	100	89	60	60	100	50	60	60	20
44	100	100	89	80	40	100	100	70	100	00
45	100	100	100	80	80	X	X	X	X	X
46	100	100	44	00	60	100	100	80	60	20
47	X	X	X	X	X	100	100	60	100	20
48	100	50	56	60	00	90	83	50	60	00
49	100	88	00	60	00					
50	100	63	00	00	00					
51	100	100	100	100	100					
52	100	100	100	100	100					
53	100	100	67	40	40					
54	100	88	89	80	80					
55	100	100	100	80	100					
56	100	88	89	100	60					
57	100	63	67	50	80					
58	100	100	100	100	100					
59	100	100	89	80	20					
60	80	100	100	80	75					

APPENDIX B

TABLE 16 Percentages of the Subjects' Performance on Negation

Elicited Imitation

Subjects	A					B				
	Time One					Time Three				
	modals	copula	do	did	does	modals	copula	do	did	does
1	43	50	64	00	00	50	42	64	00	00
2	57	50	64	33	33	36	17	55	33	50
3	29	25	55	00	00	29	00	27	00	00
4	50	75	45	00	00	43	67	36	00	00
5	36	50	55	17	00	21	33	36	17	50
6	43	50	91	50	50	43	50	73	50	33
7	29	50	45	33	33	57	67	73	67	33
8	00	42	18	17	00	00	25	45	00	00
9	36	75	73	00	17	71	67	73	17	33
10	00	8	9	00	00	7	8	55	17	00
11	00	8	9	00	00	00	00	18	00	00
12	00	00	9	00	00	00	17	18	17	00
13	57	17	64	50	50	64	50	73	67	17
14	7	25	36	33	00	7	8	18	00	00
15	100	58	82	33	83	93	83	18	83	50
16	43	58	73	00	00	57	25	82	33	00
17	71	42	73	50	17	93	33	64	50	17
18	36	50	82	00	00	50	50	73	17	00
19	71	60	82	33	00	X	X	X	X	X
20	57	58	55	17	00	X	X	X	X	X
21	71	42	64	50	50	X	X	X	X	X
22	57	33	73	17	00	X	X	X	X	X
23	93	92	100	83	83	X	X	X	X	X
24	36	33	45	17	00	X	X	X	X	X
25	79	75	73	67	50	93	83	100	83	100
26	64	75	91	33	83	100	92	100	67	100
27	79	67	45	67	17	79	58	82	00	17
28	64	50	55	50	00	93	83	73	50	50
29	43	36	82	17	17	43	58	100	50	00
30	86	58	82	67	83	93	92	100	83	100
31	46	42	64	33	33	X	X	X	X	X
32	29	33	55	33	17	X	X	X	X	X
33	64	92	64	50	83	86	75	64	33	83
34	71	25	64	17	33	43	50	64	33	00
35	36	67	64	50	00	71	50	64	50	33
36	71	58	73	00	00	X	X	X	X	X
37	43	58	73	50	33	36	58	91	33	50
38	79	83	73	50	50	93	83	45	50	17
39	86	100	91	83	83	86	100	100	100	100
40	21	50	27	17	00	29	42	55	33	17
41	71	67	82	100	67	64	42	100	100	67
42	50	92	82	83	83	79	83	91	100	83
43	64	83	100	83	33	X	X	X	X	X
44	X	X	X	X	X	X	X	X	X	X
45	57	75	82	50	50	X	X	X	X	X
46	58	67	91	33	00	X	X	X	X	X
47	54	75	64	67	17	X	X	X	X	X
48	79	67	82	67	67	X	X	X	X	X

TABLE 16 continued

Percentages of the Subjects' Performance on Negation

Elicited Imitation

A B

Subjects	Time One					Time Three				
	modals	copula	do	did	does	modals	copula	do	did	does
49	43	75	36	83	00	71	8	45	33	33
50	31	50	22	50	00	43	25	55	100	17
51	67	50	64	100	00	64	83	55	67	17
52	79	75	91	67	67	57	83	91	67	67
53	79	75	100	67	33	79	83	82	83	00
54	29	50	55	83	00	7	67	27	83	00
55	79	83	91	83	50	X	X	X	X	X
56	50	50	73	50	00	64	25	64	67	33
57	43	42	64	83	00	29	17	73	67	00
58	100	100	100	100	100	93	100	100	100	100
59	93	75	64	83	100	X	X	X	X	X
60	93	67	82	50	67	X	X	X	X	X

Elicited Imitation

C

Subjects	Time Four				
	modals	copula	do	did	does
1	57	50	64	33	17
2	57	8	55	50	50
3	29	33	55	00	00
4	43	25	91	50	33
5	57	17	64	33	17
6	71	75	82	67	50
7	36	58	45	83	33
8	7	25	18	17	00
9	7	25	55	33	17
10	7	8	9	17	00
11	00	00	00	00	00
12	00	8	9	00	00
13	79	50	82	67	67
14	00	17	27	17	00
15	100	92	100	67	83
16	X	X	X	X	X
17	79	75	73	67	33
18	79	100	91	50	17
19	79	100	82	83	17
20	71	83	73	67	00
21	79	67	82	50	83
22	X	X	X	X	X
23	X	X	X	X	X
24	43	25	55	50	17
25	71	92	100	83	67
26	71	92	100	83	100
27	71	83	91	67	33
28	64	100	91	50	50

TABLE 16 continued

Elicited Imitation

C

Subjects	Time Four				
	modals	copula	do	did	does
29	57	83	82	33	33
30	93	100	100	67	100
31	00	00	27	33	17
32	57	58	82	33	00
33	93	75	73	67	83
34	00	42	27	00	00
35	71	83	55	100	17
36	43	58	82	17	00
37	71	83	91	50	17
38	93	92	55	33	83
39	86	100	100	100	100
40	21	42	73	83	17
41	79	83	82	50	50
42	71	83	64	83	83
43	64	83	91	83	83
44	43	50	55	100	00
45	X	X	X	X	X
46	93	92	91	83	00
47	36	92	82	67	17
48	71	83	100	100	50

APPENDIX B

TABLE 17 Implication Scale
Negation Do-Support

Translation Time One

Subjects	don't	didn't	doesn't
2	0	0	0
8	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
19	0	0	0
21	0	0	0
50	0	0	0
32	0	100	0
40	11	0	0
1	22	0	0
5	22	0	0
14	22	0	0
49	33	0	0
34	33	0	40
36	44	40	0
6	44	60	0
20	56	0	0
47	56	40	80
59	56	60	0
35	56	80	0
46	56	80	20
4	67	0	0
15	67	0	0
17	67	0	0
37	67	0	0
29	67	60	0
44	67	60	60
13	67	80	0
27	67	100	0
57	67	100	80
24	78	0	0
22	78	0	80
26	78	20	60
48	78	60	0
33	78	100	0
7	89	0	0
9	89	0	0
31	89	0	60
41	89	20	0
51	89	20	100
53	89	40	40
16	89	80	0
54	89	80	80
56	89	100	0
3	100	0	0
18	100	0	20
25	100	60	25
43	100	80	20

TABLE 18 Implicational Scale
Negation Do-Support

Translation Time Two

Subjects	don't	didn't	doesn't
2	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
14	0	0	0
21	0	0	0
50	0	0	0
49	0	80	0
1	11	0	0
19	11	0	0
4	22	0	0
8	22	0	0
6	33	40	0
32	33	60	0
22	44	0	0
24	44	0	0
20	44	0	25
5	56	0	0
40	56	0	0
37	56	0	25
18	56	40	0
35	56	40	0
13	56	40	25
43	56	40	75
16	56	60	0
33	56	60	0
15	56	80	0
46	56	80	0
34	56	100	0
47	56	100	0
59	56	100	0
42	56	100	75
41	67	0	0
48	X	X	X
36	67	40	0
57	67	60	100
27	67	80	0
28	67	80	50
44	67	100	25
3	78	0	0
26	78	40	75
38	78	60	0
29	78	80	100
7	88	0	0
17	89	0	0
53	89	40	75
56	89	60	0
25	89	60	25
45	X	X	X

TABLE 17 continued

Implication Scale
Negation Do-Support

Translation Time One

Subjects	don't	didn't	doesn't
45	100	80	40
38	100	80	60
28	100	100	0
60	100	100	0
42	100	100	40
23	100	100	60
52	100	100	80
55	100	100	80
30	100	100	100
39	100	100	100
58	100	100	100

TABLE 18 continued

Implicational Scale
Negation Do-Support

Translation Time Two

Subjects	don't	didn't	doesn't
30	89	80	100
23	89	100	100
9	100	0	0
31	100	20	40
60	100	60	25
54	100	80	100
39	100	100	100
51	100	100	100
52	X	X	X
55	100	100	100
58	100	100	100

APPENDIX B

TABLE 19 Implicational Scale
Negation Do-Support

Translation Time Three

Subjects	don't	didn't	doesn't
1	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
14	0	0	0
19	0	0	0
21	0	0	0
49	0	0	0
50	0	0	0
32	0	50	0
8	11	0	0
41	11	0	0
40	33	0	0
4	33	0	17
22	44	0	0
37	44	0	0
46	44	0	17
20	44	0	66
34	44	25	0
7	56	0	0
18	X	X	X
15	56	0	0
17	56	0	17
48	56	25	0
16	56	75	0
42	56	100	0
2	67	0	0
36	67	25	17
57	67	50	83
47	X	X	X
29	67	50	100
59	67	100	33
13	78	0	0
24	78	0	0
31	78	0	83
54	78	25	100
26	78	40	100
44	78	50	33
38	78	75	17
27	78	75	33
28	78	75	50
6	89	0	0
35	89	25	20
30	89	100	83
3	100	0	0
5	100	0	0
9	100	0	0
25	X	X	X
53	100	25	17

TABLE 20 Implicational Scale
Negation Do-Support

RC Time One

Subjects	don't	didn't	doesn't
2	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
14	0	0	0
18	0	0	0
19	0	0	0
21	0	0	0
50	0	0	0
34	0	0	40
49	0	20	0
32	0	60	0
3	11	0	0
4	11	0	0
5	11	0	0
17	11	0	0
40	11	0	0
13	11	20	0
1	13	0	0
24	22	0	0
31	22	0	0
57	22	60	60
36	33	0	0
41	33	0	0
16	33	60	0
26	33	60	60
37	44	20	0
20	44	40	0
27	44	60	0
22	56	0	0
30	56	0	0
46	56	20	80
15	56	60	20
38	56	60	40
53	56	60	80
56	56	80	80
59	57	100	20
28	56	100	40
29	67	0	100
42	67	0	60
60	67	80	60
48	78	40	0
33	78	60	20
44	78	60	60
47	78	60	80

TABLE 19 continued

Implicational Scale
Negation Do-Support

Translation Time Three

Subjects	don't	didn't	doesn't
43	100	25	67
33	100	50	0
60	100	50	0
56	100	50	17
45	100	50	100
51	100	50	100
23	100	100	100
39	100	100	100
52	100	100	100
55	100	100	100
58	100	100	100

TABLE 20 continued

Implicational Scale
Negation Do-Support

RC Time One

Subjects	don't	didn't	doesn't
25	78	80	40
43	78	80	100
35	89	80	80
45	89	80	80
54	89	80	80
51	89	80	80
39	100	100	80
55	100	100	80
23	100	100	100
52	100	100	100
58	100	100	100

APPENDIX B

TABLE 21 Implicational Scale Negation Do-Support

RC Time Two

Subjects	don't	didn't	doesn't
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
8	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
14	0	0	0
19	0	0	0
21	0	0	0
24	0	0	0
34	0	0	0
32	X	X	X
40	0	0	0
41	0	0	0
50	0	0	0
18	0	0	20
7	0	20	0
49	0	40	0
9	11	0	0
26	11	20	20
13	22	0	0
17	22	0	0
36	X	X	X
31	33	0	20
37	38	20	0
22	40	0	20
20	44	60	0
48	44	60	0
59	44	60	20
16	44	80	0
46	44	80	20
38	44	80	60
47	44	100	20
35	50	20	20
25	56	40	0
29	56	40	20
15	56	60	0
57	56	80	80
33	63	80	0
42	67	40	20
44	67	80	40
30	67	100	60
53	75	60	20
56	78	80	20
28	78	80	40
43	78	80	60

TABLE 22 Implicational Scale Negation Do-Support

RC Time Three

Subjects	don't	didn't	doesn't
1	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
10	0	0	0
11	X	X	X
12	0	0	0
14	0	0	0
18	0	0	0
19	0	0	0
21	0	0	0
24	0	0	0
40	0	0	0
50	0	0	0
13	0	20	0
26	0	40	0
49	0	60	0
32	0	60	0
41	11	0	0
3	22	0	0
4	22	0	0
5	22	0	0
9	33	0	0
17	33	0	0
2	44	0	0
31	44	0	0
34	44	0	0
35	45	0	0
37	44	0	20
20	44	0	40
46	44	0	60
22	44	80	20
16	44	80	40
36	56	0	0
29	56	20	20
27	56	60	0
48	56	60	0
28	56	80	40
42	56	80	40
25	67	40	40
53	67	40	40
47	X	X	X
15	67	80	20
33	78	80	0
30	78	80	60
38	78	80	60
57	78	80	60
43	89	60	60
59	89	80	22
44	89	80	40

TABLE 21 continued

Implicational Scale
Negation Do-Support

RC Time Two

Subjects	don't	didn't	doesn't
27	78	100	20
54	89	80	80
51	100	60	100
60	100	80	40
23	100	100	80
39	100	100	100
45	100	100	100
52	100	100	100
55	100	100	100
58	100	100	100

TABLE 22 continued

Implicational Scale
Negation Do-Support

RC Time Three

Subjects	don't	didn't	doesn't
54	89	80	80
56	89	100	60
60	100	80	75
45	100	80	80
55	100	80	100
23	100	100	100
39	100	100	100
51	100	100	100
52	100	100	100
58	100	100	100

APPENDIX B

TABLE 23 Implicational Scale Negation Do-Support

Elicited Imitation Time One

Subjects	don't	didn't	doesn't
12	9	0	0
11	9	0	0
10	9	8	0
8	22	17	0
50	22	50	0
40	27	17	0
14	36	33	0
49	36	83	0
4	45	0	0
24	45	17	0
7	45	33	33
27	45	67	17
3	55	0	0
20	55	17	0
5	55	17	0
32	55	33	17
28	55	50	0
54	55	83	0
1	64	0	0
34	64	17	33
2	64	33	33
31	64	33	33
35	64	50	0
21	64	50	50
13	64	50	50
33	64	50	83
47	64	67	17
57	64	83	0
59	64	83	100
51	64	100	0
36	73	0	0
16	73	0	0
9	73	0	17
22	73	17	0
56	73	50	0
17	73	50	17
37	73	50	33
38	73	50	50
25	73	67	50
18	82	0	0
29	82	17	17
19	82	33	0
15	82	33	83
45	82	50	50
60	82	50	67
48	82	67	67
30	82	67	83
42	82	83	83
41	82	100	67

TABLE 24 Implicational Scale Negation Do-Support

Elicited Imitation Time Three

Subjects	don't	didn't	doesn't
11	18	0	0
14	18	0	0
12	18	17	0
15	18	83	50
3	27	0	0
54	27	83	0
4	36	0	0
5	36	17	50
8	45	0	0
49	45	33	33
38	45	50	17
10	55	17	0
40	55	33	17
2	55	33	50
51	55	67	17
50	55	100	17
1	64	0	0
34	64	33	0
33	64	33	83
17	64	50	17
35	64	50	33
56	64	67	33
18	73	17	0
9	73	17	33
6	73	50	33
28	73	50	50
57	73	67	0
13	73	67	17
7	73	67	33
27	82	0	17
16	82	33	0
53	82	83	0
37	91	33	50
52	91	67	67
42	91	100	83
29	100	50	0
26	100	67	100
25	100	83	100
30	100	83	100
41	100	100	67
39	100	100	100
58	100	100	100

TABLE 23 continued

Implicational Scale
Negation Do-Support

Elicited Imitation Time One

Subjects	don't	didn't	doesn't
46	91	33	0
26	91	33	83
6	91	50	50
52	91	67	67
55	91	83	50
39	91	83	83
53	100	67	33
43	100	83	33
23	100	83	83
58	100	100	100
44	X	X	X

TABLE No 25.

The Continuum for Negation

Translation Time One

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
10	36										Stage 1
12	36										
11	31										
14	3	13									Stage 2
9	5	25	-	3							
4	14	14	-	6							
5	15	6	-	7							
40	21	3	-	5	2						
49	19	3	-	7	3						
48	8	12	-	8	3						
31	-	31	-	4	1						
18		25	-	5	5						
8	26	-	10	1	1						
2	17	-	1	7	7						
19	13	-	11	6	5						
50	10	-	10	8	7						
21	9	-	17	3	5						
1	17	6	6	7	-						Stage 3
34	10	7	3	8	1						
41	3	20	1	7	4		1				
24	2	27	4	1	1						
20	1	5	10	7	7						
22	1	12	2	10	6						
7	-	26	4	1	1						
3	-	26	2	5	-						
17	-	11	10	7	7						
37	-	14	10	7	5						
15	-	10	1	10	7		3				
13	4	11	-	5	1	13					Stage 4
32	3	-	-	10	4	14					
6	-	5	6	6	2	13					
27	-	7	1	10	4	14					
33	-	8		10	7	10					
35	-	11	5	4	5	14					
56	-	16	1	7	5	6					
59	-	6	2	10	7	10					
60	-	13	-	10	7	6					
16	-	12	4	8	7	-	-	-	3	-	
28	2	12	3	10	6	-	-	-	5	-	
36	-	-	16	7	7	-	-	4	2	-	
29	2	-	4	9	6	-	-	6	3	-	

TABLE No. 25 continued

The Continuum for Negation

Translation Time One

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
57	-	7	4	6	6	5	6	-	-	-	
53	-	9	6	9	7	-	3	-	2	-	
42	-	13	1	8	3	8	-	-	-	2	
43	-	16	-	8	6	5	-	-	-	2	
26	-	8	2	9	7	-	-	-	1	2	
44	-	13	-	7	6	-	-	-	3	3	
45	-	12	-	10	7	-	-	-	4	2	
46	-	6	9	10	7	-	-	-	4	1	
47	-	7	5	7	7	-	-	-	2	4	
25	-	15	2	7	5	-	-	-	3	4	
23	-	12	2	10	6	-	-	-	5	3	
55	-	10	1	7	5	-	-	-	5	4	
54	-	12	-	8	6	-	5	-	4	-	
38	-	-	2	10	7	-	4	9	4	-	
51	-	10	-	9	7	-	9	-	1	-	
30	-	-	-	10	5	-	7	9	5	-	
39	-	-	-	10	7	-	-	9	5	5	
52	-	-	-	10	7	-	-	9	5	5	
58	-	-	-	10	7	-	-	9	5	5	

Stage 5

Stage 6

TABLE No 26.

The Continuum for Negation

Translation Time Two

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
10	36										Stage 1
11	36										
12	36										
14	35										
9	1	31	-	1							Stage 2
40	9	14	-	3	3						
5	8	16	-	5	3						
50	9	-	8	9	7						
21	12	-	17	4	4						
8	29	3	4	-	-						Stage 3
4	3	17	15	-	-						
2	7	1	17	4	6						
19	19	2	6	4	5						
1	12	6	6	4	-						
24	8	19	8	1	3						
3	1	23	3	5	4						
7	-	28	10	2	4						
20	-	6	14	8	7						
41	-	9	12	9	6		1				
49	8	-	1	8	6	11					Stage 4
34	4	8	-	6	4	14					
22	1	4	1	12	4	2	1				
32	1	3	4	4	4	20					
17	-	17	10	6	7	4					
18	-	7	3	5	7	11					
37	-	5	12	6	7	4	1				
6	-	8	3	5	4	14					
27	-	7	1	9	7	11					
33	-	8	3	10	7	6					
35	-	11	7	4	7	6					
56	-	17	2	7	7	4					
36	-	8	13	6	7	2					
47	-	8	7	6	7	6					
46	-	5	7	11	7	6					
16	-	6	13	6	7	4					
60	-	16	-	8	7	-	1	-	2		
15	-	-	-	11	7	11	-	5	-	-	
59	-	-	-	11	7	13	-	5	-	-	

TABLE No 26 continued

The Continuum for Negation

Translation Time Two

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
13	2	6	3	6	4	11	3				
31	-	16	-	6	3	6	5				
42	-	5	5	10	6	6	3				
43	-	6	8	6	6	4	6				
44	-	8	-	14	7	5	2				
54	-	10	-	11	6	5	4				
57	-	9	4	5	6	4	7				
28	-	-	6	10	7	5	-	6	-	2	Stage 5
53	-	12	-	8	7		5	-	2	-	
29	-	8	1	10	5	-	7	-	4	-	
25	-	-	5	11	7	4	2	8	-	-	
38	-	-	6	11	7	-	2	7	3	-	
51	-	10	-	11	7	-	-	-	4	4	
30	-	9	1	11	4	-	7	-	4	-	
26	-	8	5	10	7	3	-	-	-	3	
23	-	-	-	11	7	-	-	8	5	4	Stage 6
55	-	-	-	11	7	-	-	9	5	4	
39	-	-	-	11	7	-	-	9	5	4	
58	-	-	-	11	7	-	-	9	5	4	

TABLE No 27.

The Continuum for Negation

Translation Time Three

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
10	36										Stage 1
14	36										
12	35										
1	27	1	-	6	1						Stage 2
3	1	27	-	4	2						
50	13	-	6	10	7						
19	12	-	13	4	6						
21	8	-	20	2	5						
8	24	1	1	-	-						Stage 3
48	16	6	3	6	3						
40	15	9	2	5	3						
41	4	2	18	6	6						
24	3	22	3	3	2						
7	2	14	11	3	7						
37	1	4	14	10	7						
9	-	29	1	4	-						
5	-	26	2	4	3						
6	-	18	4	4	6						
17	-	15	7	6	7						
2	-	11	14	5	5						
34	15	4	4	6	4	3					Stage 4
49	12	-	4	9	7	3					
32	-	5	6	4	3	17					
33	-	17	1	6	7	2					
15	-	-	2	11	7	10	-	5	-	-	
16	-	8	11	6	7	-	-	-	3	-	
4	13	11	-	6	3	-	2				Stage 5
13	2	16	6	6	4	1	1				
20	-	5	11	9	7	-	5				
22	-	5	-	10	3	1	3				
27	-	10	-	7	6	10	4				
35	-	16	2	5	6	5	1				
56	-	20	-	6	7	1	1				
36	-	7	13	6	7	1	1				
31	-	14	3	4	4	-	9				
42	-	6	13	6	7	4	1				
43	-	15	11	6	6	1	6				
44	-	10	-	13	7	3	2				
45	-	10	-	7	9	2	7				
54	-	10	1	6	7	1	10				
57	-	10	3	6	7	2	8				
52	-	11	-	6	7	5	7				
28	-	9	3	7	5	7	5				
46	-	4	10	10	7	-	5				

The Continuum for Negation

Translation Time Three

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
60	-	19	-	7	7	-	1	-	2	-	
59	-	-	-	10	7	11	2	6	-	-	
53	-	13	5	8	7	-	1	-	1	-	
29	-	7	-	7	6	-	14	-	2	-	
38	-	-	6	10	7	-	3	7	3	-	
51	-	10	-	10	7	-	6	-	2	-	
30	-	9	1	10	5	-	7	-	4	-	
26	-	8	3	9	6	-	8	-	2	-	
23	-	-	-	10	7	-	-	9	4	6	Stage 6
39	-	-	-	10	7	-	-	9	4	6	
55	-	-	-	10	7	-	-	9	4	6	
58	-	-	-	10	7	-	-	9	4	6	

TABLE No 28.

The Continuum for Negation

Translation Time Four

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
10	30										Stage 1
12	30										
11	29	-	-	4							
14	25	9	-	-							Stage 2
8	19	1	9	1	3						Stage 3
3	8	16	2	10	-						
24	6	12	6	3	2						
19	6	1	13	9	6						
13	3	-	12	11	4	-	-	5			
21	-	29	11	5	-						
41	-	8	11	10	6						
17	-	10	7	12	6						
18	-	8	8	14	6						
33	-	14	3	11	6						
2	-	5	15	10	6						
48	4	11	1	10	4	6					Stage 4
1	3	15	2	10	3	4					
32	-	17	-	7	3	5					
6	-	8	12	8	6	1					
44	-	8	-	10	4	6					
15	-	8	-	10	6	11					
43	-	-	4	9	6	6		8			
37	-	7	15	6	5	-	-	-	2		
36	-	5	12	10	6	-	-	-	2		
47	-	8	8	10	6	-	-	-	4		
34	11	8	2	8	4	-	2				Stage 5
40	8	-	-	8	3	9	1				
5	2	15	1	10	1	-	2				
4	1	20	2	10	-	-	2				
7	1	12	1	9	2	8	3				
20	1	5	11	10	5	2	1				
9	-	23	3	10	1	-	2				
35	-	8	2	7	6	8	6				
31	-	15	3	4	6	-	8				
27	-	10	-	9	6	1	-	-	-	4	Stage 6
42	-	8	5	10	4	6	-	-	-	3	
46	-	10	4	10	6	-	-	-	4	1	
25	-	-	4	10	4	5	4	8	-	-	
29	-	-	-	10	6	8		8	-	4	
28	-	11	-	10	6	-	-	-	5	4	
38	-	-	5	10	6	-	3	7	5	-	
26	-	-	-	9	6	-	8	8	5	-	
30	-	-	-	10	6	-	-	10	5	5	
39	-	-	-	10	6	-	-	10	5	5	

TABLE No 29.

Continuum for Negation

Recognition and Correction Time One

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
10	27	4	3								Stage 3
12	27	4	1								
24	26	7	1	1							
8	23	5	7	-	1						
1	21	2	2	4							
11	21	5	5	3	2						
9	20	5	4	4	3						
21	20	1	2	8	5						
6	19	4	5	5	3						
40	19	4	3	7	3						
7	18	4	5	4	3						
3	15	5	13	2	1						
41	14	9	3	8	1						
4	13	5	7	8	2						
18	13	3	8	6	5						
2	12	3	9	7	4						
50	12	2	7	10	4						
5	11	5	2	9	3						
31	8	5	12	5	4						
17	8	5	16	3	4						
36	4	3	11	10	7						
14	24	3	5	1	1	1					Stage 4
19	14	4	7	7	3	1					
20	12	5	5	9	3	2					
13	10	10	4	8	1	3					
32	8	-	3	10	3	11					
48	4	11	3	8	3	3					
35	-	16	3	8	4	5					
16	-	4	11	10	6	4					
29	8	10	5	9	3	1					

TABLE No. 29 continued.

Continuum for Negation

Recognition and Correction Time One (cont)

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
49	15	4	3	6	5	1	1				
34	15	1	6	7	3	-	4				
37	9	5	8	7	2	1	3				
22	4	8	2	9	6	-	2		5		
15	2	10	3	7	4	4	1				
27	1	4	8	10	5	6	2				
42	4	8	3	10	4		5		1		
33	-	9	5	10	7	4				1	
25	-	11	4	9	5	5				2	
26	5	5	5	9	5	4				3	
30	-	-	9	10	7			5		5	
28	-	7	4	10	6	7				2	
43	-	-	3	10	6	5		7		5	
44	-	9	4	10	6	5				3	
51	-	-	-	10	7	-	7	10	3		
53	-	-	6	10	7	4		5	-	4	Stage 5
54	-	10	3	10	5	5	-	-	-	4	
55	-	11	-	9	7	-	-	-	5	4	
56	2	8	3	10	5				4	4	
57	7	3	5	9	6	4				3	
59	-	5	-	10	7	11	-	-	-	1	
60	-	9	-	8	7	7				3	
38	-	-	9	10	7			5	3	2	
46	-	-	10	10	7			5	1	3	
47	1	10	2	10	5				3	4	
45	-	-	1	11	7			9	4	4	
23	-	-	-	10	7			9	5	5	Stage 6
39	-	-	-	10	7			9	5	5	
52	-	-	-	10	7			9	5	5	
58	-	-	-	10	7			9	5	5	

TABLE No. 30.

Continuum for Negation

Recognition and Correction Time Two

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
12	31	3	1	1	-						Stage 3
10	27	3	4								
24	26	2	6	-	2						
11	23	2	4	3	1						
1	21	2	5	7	-						
3	21	3	7	1	2						
8	20	3	9	-	3						
6	19	2	6	4	2						
4	17	2	8	7	2						
34	17		6	9	4						
19	15	3	10	3	3						
40	14	3	6	8	2						
5	13	2	7	8	2						
2	12	2	12	4	3						
9	11	1	5	10	1						
50	11	2	5	10	7						
17	10	4	8	10	6						
18	8	1	10	9	6						
21	8	1	14	7	4						
20	7	5	7	10	3						
41	5	2	14	8	5						
14	25	1	4	-	2	2					Stage 4
7	15	3	10	3	5	1					
26	14	3	5	3	4	1					
13	11	3	6	9	4	1					
49	7	-	6	10	7	5					
33	-	8	3	10	7	5					
48	10	4	4	9	6				3		
15	2	-	1	9	7	10		5			
16	-	4	11	10	7				4		

TABLE No. 30 continued.

Continuum for Negation

Recognition and Correction Time Two (cont)

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
25	1	8	8	11	6	2					
37	4	3	14	7	4	3					
35	6	8	8	6	4	1	2				
31	4	5	8	11	4	-	3				
27	1	-	4	9	4	10	1	7			
29	4	6	8	7	5	5	1				
47	-	5	7	10	6	5	1				
22	-	4	5	11	7	-	2				
56	2	-	2	12	5	6		7	-	1	
42	-	7	8	10	7	-	2				
44	-	8	4	9	7	6	3				
28	-	8	4	10	6	5				2	
43	-	-	4	10	6	5		7		3	
59	-	5	2	12	7	9				1	
51	-	-	-	10	7	-	7	9	3		Stage 5
23	-	10	-	10	6	6				4	
38	-	-	8	10	7			4	4	3	
45	-	-	-	9	7	6		9	-	5	
46	-	6	8	11	7				4	1	
53	-	8	5	10	7				3	1	
54	-	-	3	10	7			8	4	4	
55	-	10	-	10	7				5	4	
57	-	-	6	9	7		5	5	4		
60	-	13	1	9	7				4	2	
30	-	7	4	10	6	6				3	
39	-	-	-	10	7			9	5	5	
52	-	-	-	10	7			9	5	5	Stage 6
58	-	-	-	10	7			9	5	5	

TABLE No 31.

Continuum for Negation

Recognition and Correction Time Three

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
12	33	3	2								Stage 3
10	29	4	3								
1	25	3	5	2	1						
3	22	6	5	2	2						
4	18	4	3	9	2						
8	17	4	11	-	4						
24	19	5	4	4	3						
34	15	2	5	11	4						
9	14	5	5	9	3						
50	13	1	6	10	5						
5	9	9	8	7	1						
21	8	-	12	9	8						
7	7	4	22	1	3						
2	6	6	15	6	3						
17	6	3	9	11	8						
19	5	4	16	5	7						
41	5	2	13	11	7						
37	1	4	12	10	8						
36	-	6	13	11	7						
14	26	2	3	-	2	1					Stage 4
13	17	1	5	9	3	1					
18	16	4	5	8	3	1					
48	11	6	2	10	4	4					
32	5	-	4	9	3	14					
15	-	7	6	11	7	5					
27	1	-	4	10	6	11		5			
33	1	10	2	10	8				4		
6	12	1	8	6	6		2				
40	11	2	8	9	4		1				

TABLE No. 31 continued.

Continuum for Negation

Recognition and Correction Time Three (cont)

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
49	7	-	4	12	7	5	2				
35	6	11	6	6	5	-	3				
22	4	5	2	9	3	5	4				
20	-	4	10	10	8	-	4				
31	-	5	15	6	8	-	3				
38	-	7	4	10	7	5	4				
25	-	7	8	10	7	3				2	
56	-	10	1	10	7	6				3	
57	-	9	5	10	5	5				3	
26	11	-	9	6	8				2	1	
53	-	8	7	10	8				2	2	
43	-	11	2	10	8				3	2	
44	-	9	1	13	8				4	2	
60	-	14	1	7	8				4	4	
59	-	3	10	8	7			8	-	1	Stage 5
46	-	4	10	10	8		5				
45	-	-	-	10	8		5	9	4		
30	-	9	3	10	8				4	3	
28	-	6	4	12	8			5	-	2	
29	2	-	11	9	8			5	1	1	
16	-	4	9	10	8				4	2	
42	-	-	8	10	8			5	4	2	
54	-	-	3	10	8			8	4	4	
55	-	-	1	10	8			9	4	5	
23	-	-	-	10	8			9	5	5	Stage 6
39	-	-	-	10	8			9	5	5	
51	-	-	-	10	8			9	5	5	
52	-	-	-	10	8			9	5	5	
58	-	-	-	10	8			9	5	5	

TABLE No 32.

Continuum for Negation

Recognition and Correction Time Four

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
12	22	6	7								
10	21	4	8								
11	18	6	9								
24	18	5	10	- -	2						
8	16	6	11	- -	1						
6	14	3	7	10	2						
4	13	5	7	8	2						
3	12	5	11	4	2						
7	11	3	11	8	2						
5	9	7	9	8	-						
18	9	2	12	8	5						
14	8	12	14	1	2						
21	7	4	18	4	3						
2	6	-	14	9	6						
41	6	4	15	10	3						
13	5	2	13	11	5						
19	5	3	18	7	3						
20	4	5	13	8	6						
37	3	5	16	6	5						
17	1	8	7	15	5						
36	-	-	9	10	6			7			Stage 3
1	14	4	9	6	1	1					
48	4	6	9	9	5	3					
15	-	-	10	10	6	4		6			
33	-	-	6	10	6	-		7	3		Stage 4
9	7	8	11	5	1		1				
26	5	2	9	11	3		6				
31	1	10	5	6	4		10				
32	1	7	4	12	2		10				
34	12	2	12	4	2		3				
35	3	11	9	6	5		2				
40	7	3	10	8	3		5				
44	-	-	3	11	6	8	7				
28	-	8	4	10	5		4		5		
43	-	-	9	10	3	4	4	6			
25	-	-	5	10	1		8	7	4		
27	-	-	1	10	6	11		7	-	1	
29	-	9	11	10	5					1	
30	-	-	1	10	5		5	10	5	-	
46	-	10	6	10	6				3	1	
47	-	-	8	10	6			6	5	1	
42	-	-	9	10	4		4	6	3	-	
38	-	-	4	11	6			6	5	4	
39	-	-	-	10	6			10	5	5	Stage 5
											Stage 6

TABLE No 33.

Continuum for Negation

Elicited Imitation Time One

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
12	-	1	-	-	-						Stage 3
10	2	1	-	-	-						
11	1	1	1	-	-						
36	11	9	5	9	7						
1	4	16	4	6	6						
16	4	24	2	6	6						
22	3	11	6	8	4						
5	2	18	5	5	6						
4	1	8	10	7	9						
18	1	19	-	5	6						
3	-	14	4	4	3						
50	11	2	2	4	6	8					Stage 4
20	7	11	7	8	7	2					
24	4	6	10	5	4	2					
40	4	10	2	3	6	11					
14	3	5	1	3	3	2					
35	3	12	5	5	8	3					
8	2	7	5	-	3	2					
29	2	17	1	6	4	2					
49	2	4	-	6	9	21					
19	1	11	6	10	8	6					
28	1	9	3	9	6	10					
27	-	5	6	11	9	5					
46	-	20	5	8	8	2					
47	-	14	1	6	9	10					
51	-	8	-	9	9	17					
54	-	9	2	4	6	24					
56	-	16	-	7	6	5					
57	-	9	-	6	5	20					

TABLE No 33 continued.

Continuum for Negation

Elicited Imitation Time One (cont)

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
13	6	12	3	8	3	5	3				
17	6	11	3	10	9	3	5				
37	5	14	2	6	7	7	2				
48	5	10	1	11	7	4	6				
7	3	12	9	4	6	4	5				
31	3	16	-	6	5	6	4				
32	3	8	4	4	4	8	3				
2	2	17	5	8	6	3	4				
9	2	14	9	5	9	1	3				
25	2	12	4	11	9	4	5				
15	1	-	1	14	9	3	6	8			
34	5	2	8	4	9	1	2				
6	1	15	3	6	6	5	5				
52	-	10	-	11	9	8	5				
26	2	12	2	9	9	3				5	Stage 5
33	2	8	4	9	11	5				5	
41	1	14	-	10	9	7				4	
42	1	11	3	7	11	8				5	
60	1	11	1	13	10	4				4	
43	-	14	3	9	10	7				2	
45	-	16	1	8	9	7				3	
53	-	15	-	11	10	7				2	
38	-	-	4	10	10	5		7		3	
59	-	-	-	13	9	8		6		6	
39	-	-	1	12	12	7		9		5	
55	-	15	1	11	11				5	3	
21	3	-	1	10	5			7	5	3	
30	-	-	-	11	9			10	4	6	
23	-	-	1	13	11			11	5	5	
58	-	-	-	14	12			11	6	6	Stage 6

TABLE No. 34.

Continuum for Negation

Elicited Imitation Time 3

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
4	4	7	9	6	8						Stage 3
1	-	25	11	7	5						
3	-	21	9	4	-						
8	-	18	14	-	3						
14	-	6	2	1	1						
11	-	4	1	2	-						
12	3	3	2	-	2						
18	-	14	3	7	6						
34	12	10	4	6	6	2					Stage 4
13	9	9	1	9	6	6					
50	5	9	1	6	3	12					
10	4	10	2	1	1	2					
29	4	18	6	6	7	4					
16	1	14	1	8	3	15					
40	-	19	4	4	5	7					
53	-	-	1	11	10	13		9			
54	-	4	2	1	8	29					
57	-	14	2	4	2	16					
5	7	12	2	3	4	2	3				Stage 5
35	5	8	3	10	7	4	2				
17	4	8	5	13	3	4	3				
2	3	17	4	5	2	5	7				
7	2	11	5	8	8	4	4				
9	2	12	4	-	-	1	2				
41	2	14	2	9	5	8	4				
6	1	14	3	6	6	4	5				
49	1	5	2	10	1	11	4				
33	-	9	-	12	9	3	6				
37	-	13	3	6	7	5	3				
38	-	7	3	13	11	10	2				
51	-	10	-	9	10	12	2				
52	-	15	1	8	10	4	7				
56	-	10	2	8	3	8	2				
15	-	-	-	13	10	10	4	8			
27	-	-	3	12	7	-	3	9			
42	-	-	2	11	10	9	6	10			
28	-	-	5	13	10	6	-	8	1	3	
25	-	12	-	13	10	-	7	-	6		
30	-	-	-	13	11	-	8	11	5		
26	-	12	-	14	12	-	-	-	4	6	
58	-	12	-	13	12	-	-	11	6	6	Stage 6
39	-	-	-	12	12	-	-	11	6	6	

TABLE No. 35.

Continuum for Negation

Elicited Imitation Time 4

Subject	no/not + verb phrase	unanalysed "don't"	non-standard cop (aux) + neg.	modals	Standard cop + neg	unanalysed "didn't"	unanalysed "doesn't"	do not + MV	did not + MV	does not + MV	
34	12	7	7	-	5						
12	8	1	2	-	1						
11	5	-	2	-	-						
10	3	1	-	1	1						
3	4	20	6	4	4						Stage 3
14	10	12	2	-	2	2					
1	6	14	5	8	6	3					
5	6	15	1	8	2	4					
36	6	-	7	5	7	7		9			
8	5	5	12	1	3	3					
35	2	10	3	10	10	11					
32	-	23	3	8	7	5					
37	-	11	5	10	10	5					
46	-	14	4	13	11	5					
47	1	18	2	5	11	5					
20	2	8	10	11	10	-			4		
19	1	11	4	11	12	-			5		Stage 4
18	-	12	5	11	12	-			3		
9	8	11	4	1	3	3	2				
2	5	12	2	8	1	8	7				
29	3	10	6	8	10	3	3				
31	3	11	8	-	-	10	2				
7	2	7	6	5	7	12	3				
4	3	14	5	6	3	4	5				
24	1	11	6	6	3	3	3				
25	1	13	1	9	11	7	5				
40	1	9	2	3	5	19	3				
42	1	8	3	10	10	6	6				
44	1	8	1	6	6	17	2				
6	-	14	2	10	9	4	5				
13	-	11	2	11	6	5	5				
21	-	10	2	11	8	6	7				
28	-	11	3	9	12	4	4				
38	-	5	2	13	11	5	10				
43	-	10	2	9	10	6	7				
17	-	9	6	11	9	8	2				Stage 5
15	-	12	-	14	11	-	6		4		
30	-	12	-	13	12		6		4		
41	-	13	2	11	10	4	-			3	
48	-	13	-	10	10	9	-			3	
26	1	12	-	10	11	7	-			6	
27	-	14	3	10	10	-	-		4	2	
33	-	-	-	13	9	-	-	7	4	5	
39	-	-	-	12	12	-	-	11	6	6	Stage 6

TABLE No. 36

Ranking According to Level and Placement on the Continuum for Negation

Translation Time One

Subject	Level	Stage on the Continuum	d	d^2
1	1	3	-2	4
2	1	2	-1	1
3	1	3	-2	4
4	1	2	-1	1
5	1	2	-1	1
6	1	4	-3	9
7	1	3	-2	4
8	1	2	-1	1
9	1	2	-1	1
10	1	1	0	0
11	1	1	0	0
12	1	1	0	0
13	2	4	-2	4
14	2	2	0	0
15	2	3	-1	1
16	2	4	-2	4
17	2	3	-1	1
18	2	2	0	0
19	2	2	0	0
20	2	3	-1	1
21	2	2	0	0
22	2	3	-1	1
23	2	5	-3	9
24	2	3	-1	1
25	3	5	-2	4
26	3	5	-2	4
27	3	4	-1	1
28	3	4	-1	1
29	3	4	-1	1
30	3	6	-3	9
31	3	2	1	1
32	3	4	-1	1
33	3	4	-1	1
34	3	3	0	0
35	3	4	-1	1
36	3	4	-1	1
37	4	3	1	1
38	4	5	-1	1
39	4	6	-2	4
40	4	2	2	4
41	4	3	1	1
42	4	5	-1	1
43	4	5	-1	1
44	4	5	-1	1
45	4	5	-1	1
46	4	5	-1	1
47	4	5	-1	1
48	4	2	2	4
49	5	2	3	9
50	5	2	3	9
51	5	5	0	0
52	5	6	-1	1
53	5	5	0	0
54	5	5	0	0
55	5	5	0	0

$r_{rho} = .9967$

TABLE No. 36 (cont)

Subject	Level	Stage on the Continuum	d	d^2
56	5	4	1	1
57	5	5	0	0
58	5	6	-1	1
59	5	4	1	1
60	5	4	1	1

$r_{rho} = .9967$

TABLE No. 37

Ranking According to Level and Placement on the Continuum for Negation Recognition and Correction Time One

Subject	Level	Stage on the Continuum	d	d^2
1	1	3	-2	4
2	1	3	-2	4
3	1	3	-2	4
4	1	3	-2	4
5	1	3	-2	4
6	1	3	-2	4
7	1	3	-2	4
8	1	3	-2	4
9	1	3	-2	4
10	1	3	-2	4
11	1	3	-2	4
12	1	3	-2	4
13	2	4	-2	4
14	2	4	-2	4
15	2	5	-3	9
16	2	4	-2	4
17	2	3	-1	1
18	2	3	-1	1
19	2	4	-2	4
20	2	4	-2	4
21	2	3	-1	1
22	2	5	-3	9
23	2	6	-4	16
24	2	3	-1	1
25	3	5	-2	4
26	3	5	-2	4
27	3	5	-2	4
28	3	5	-2	4
29	3	4	-1	1
30	3	5	-2	4
31	3	3	0	0
32	3	4	-1	1
33	3	5	-2	4
34	3	5	-2	4
35	3	4	-1	1
36	3	3	0	0
37	4	5	-1	1
38	4	5	-1	1
39	4	6	-2	4
40	4	3	1	1
41	4	3	1	1
42	4	5	-1	1
43	4	5	-1	1
44	4	5	-1	1
45	4	5	-1	1
46	4	5	-1	1
47	4	5	-1	1
48	4	4	0	0
49	5	5	0	0
50	5	3	2	4
51	5	5	0	0
52	5	6	-1	1
53	5	5	0	0
54	5	5	0	0
55	5	5	0	0

$r_{rho} = .9956$

TABLE No. 37 (cont)

Subject	Level	Stage on the Continuum	d	d^2
56	5	5	0	0
57	5	5	0	0
58	5	6	-1	1
59	5	5	0	0
60	5	5	0	0

$r_{rho} = .9956$

TABLE No. 38

Ranking According to Level and Placement on the Continuum for Negation Elicited Imitation Time One

Subject	Level	Stage on the Continuum	d	d^2
1	1	3	-2	4
2	1	5	-4	16
3	1	3	-2	4
4	1	3	-2	4
5	1	3	-2	4
6	1	5	-4	16
7	1	5	-4	16
8	1	4	-3	9
9	1	5	-4	16
10	1	3	-2	4
11	1	3	-2	4
12	1	3	-2	4
13	2	5	-3	9
14	2	4	-2	4
15	2	5	-3	9
16	2	3	-1	1
17	2	5	-3	9
18	2	3	-1	1
19	2	4	-2	4
20	2	4	-2	4
21	2	5	-3	9
22	2	3	-1	1
23	2	5	-3	9
24	2	4	-2	4
25	3	5	-2	4
26	3	5	-2	4
27	3	4	-1	1
28	3	4	-1	1
29	3	4	-1	1
30	3	5	-2	4
31	3	5	-2	4
32	3	5	-2	4
33	3	5	-2	4
34	3	5	-2	4
35	3	4	-1	1
36	3	3	0	0
37	4	5	-1	1
38	4	5	-1	1
39	4	5	-1	1
40	4	4	0	0
41	4	5	-1	1
42	4	5	-1	1
43	4	5	-1	1
44	4			
45	4	5	-1	1
46	4	4	0	0
47	4	4	0	0
48	4	5	-1	1
49	5	4	1	1
50	5	4	1	1
51	5	4	1	1
52	5	5	0	0
53	5	5	0	0
54	5	4	1	1
55	5	5	0	0

$r_{rho} = .9938$

TABLE No. 38 (cont)

Subject	Level	Stage on the Continuum	d	d^2
56	5	4	1	1
57	5	4	1	1
58	5	6	-1	1
59	5	5	0	0
60	5	5	0	0

$r_{rho} = .9938$

TABLE No. 39

Ranking According to Level and Placement on the Continuum for Copula Realisation Translation Time One

Subject	Level	Stage on the Continuum	d	d^2
1	1	4	-3	9
2	1	6	-5	25
3	1	4	-3	9
4	1	4	-3	9
5	1	4	-3	9
6	1	4	-3	9
7	1	7	-6	36
8	1	4	-3	9
9	1	4	-3	9
10	1	1	0	0
11	1	4	-3	9
12	1	1	0	0
13	2	4	-2	4
14	2	1	1	1
15	2	6	-4	16
16	2	7	-5	25
17	2	7	-5	25
18	2	7	-5	25
19	2	6	-4	16
20	2	6	-4	16
21	2	7	-5	25
22	2	6	-4	16
23	2	7	-5	25
24	2	4	-2	4
25	3	7	-4	16
26	3	7	-4	16
27	3	7	-4	16
28	3	7	-4	16
29	3	6	-4	16
30	3	5	-2	4
31	3	6	-3	9
32	3	7	-4	16
33	3	6	-3	9
34	3	5	-2	4
35	3	7	-4	16
36	3	7	-4	16
37	4	5	-1	1
38	4	7	-3	9
39	4	7	-3	9
40	4	4	0	0
41	4	5	-1	1
42	4	7	-3	9
43	4	7	-3	9
44	4	7	-3	9
45	4	7	-3	9
46	4	7	-3	9
47	4	7	-3	9
48	4	6	-2	4
49	5	5	0	0
50	5	7	-2	4
51	5	7	-2	4
52	5	7	-2	4
53	5	7	-2	4
54	5	7	-2	4
55	5	7	-2	4

$r_{rho} = .9825$

TABLE No. 39 (cont)

Subject	Level	Stage on the Continuum	d	d^2
56	5	7	-2	4
57	5	7	-2	4
58	5	7	-2	4
59	5	7	-2	4
60	5	7	-2	4

$r_{rho} = .9825$

TABLE No. 40

Ranking According to Level and Placement on the Continuum for Copula Realization. Recognition and Correction Time One

Subject	Level	Stage on the Continuum	d	d^2
1	1	4	-3	9
2	1	4	-3	9
3	1	4	-3	9
4	1	4	-3	9
5	1	4	-3	9
6	1	4	-3	9
7	1	4	-3	9
8	1	4	-3	9
9	1	4	-3	9
10	1	1	0	0
11	1	3	-2	4
12	1	1	0	0
13	2	4	-2	4
14	2	4	-2	4
15	2	4	-2	4
16	2	5	-3	9
17	2	5	-3	9
18	2	5	-3	9
19	2	5	-3	9
20	2	6	-4	16
21	2	4	-2	4
22	2	4	-2	4
23	2	7	-5	25
24	2	4	-2	4
25	3	7	-4	16
26	3	4	-1	1
27	3	6	-3	9
28	3	6	-3	9
29	3	4	-1	1
30	3	7	-4	16
31	3	6	-3	9
32	3	5	-2	4
33	3	6	-3	9
34	3	4	-1	1
35	3	6	-3	9
36	3	6	-3	9
37	4	4	0	0
38	4	7	-3	9
39	4	7	-3	9
40	4	4	0	0
41	4	4	0	0
42	4	6	-2	4
43	4	7	-3	9
44	4	6	-2	4
45	4	7	-3	9
46	4	6	-2	4
47	4	5	-1	1
48	4	5	-1	1
49	5	6	-1	1
50	5	7	-2	4
51	5	7	-2	4
52	5	7	-2	4
53	5	7	-2	4
54	5	7	-2	4
55	5	7	-2	4

$r_{rho} = .9896$

TABLE No. 40 (cont)

Subject	Level	Stage on the Continuum	d	d^2
56	5	6	-1	1
57	5	6	-1	1
58	5	7	-2	4
59	5	7	-2	4
60	5	7	-2	4

$r_{rho} = .9896$

TABLE No. 41

Ranking According to Level and Placement on the Continuum for Copula Realization. Elicited Imitation Time One

Subject	Level	Stage on the Continuum	d	d^2
1	1	5	-4	16
2	1	4	-3	9
3	1	4	-3	9
4	1	4	-3	9
5	1	4	-3	9
6	1	4	-3	9
7	1	4	-3	9
8	1	4	-3	9
9	1	4	-3	9
10	1	2	-1	1
11	1	2	-1	1
12	1	2	-1	1
13	2	4	-2	4
14	2	4	-2	4
15	2	4	-2	4
16	2	4	-2	4
17	2	4	-2	4
18	2	4	-2	4
19	2	4	-2	4
20	2	4	-2	4
21	2	4	-2	4
22	2	4	-2	4
23	2	5	-3	9
24	2	4	-2	4
25	3	6	-3	9
26	3	5	-2	4
27	3	4	-1	1
28	3	4	-1	1
29	3	4	-1	1
30	3	4	-1	1
31	3	4	-1	1
32	3	4	-1	1
33	3	5	-2	4
34	3	4	-1	1
35	3	4	-1	1
36	3	4	-1	1
37	4	4	0	0
38	4	6	-2	4
39	4	7	-3	9
40	4	4	0	0
41	4	6	-2	4
42	4	5	-1	1
43	4	4	0	0
44	4			
45	4	4	0	0
46	4	6	-2	4
47	4	6	-2	4
48	4	4	0	0
49	5	5	0	0
50	5	4	1	1
51	5	5	0	0
52	5	4	1	1
53	5	5	0	0
54	5	4	1	1
55	5	5	0	0

$r_{rho} = .9941$

TABLE No. 41 (cont)

Subject	Level	Stage on the Continuum	d	d^2
56	5	4	1	1
57	5	4	1	1
58	5	7	-2	4
59	5	4	1	1
60	5	5	0	0

$r_{rho} = .9941$

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